C-201

WESTERN SHASTA RESOURCE CONSERVATION DISTRICT

3294 Bechelli Lane, Redding, CA 96002-2005 - Phone: (530) 224-3250 Fax: (530) 224-3253

May 12, 2000

The Table of Contents PSP. Cover sheet Appears at end of Document of on Line

Steve Ritchie, Acting Director
CALFED Bay-Delta Program
1416 Ninth St., Suite 1155
Sacramento, CA95814

RE: *Proposal for Lower Clear Cree* & 4
Under Ecosystem Restoration I icitation

Dear Mr. Ritchie:

Enclosed is one original, ten copies and a disk version of our proposal for the Lower Clear Creek Floodway Restoration Project Phases 3 & 4. If there are any questions, please give me a call.

Sincerely,

Tom Engstrom

Tom Engstrom, President
Board of Directors

Encl.

Western Shasta Resource Conservation District
Lower Clear Creek Floodway Restoration Project Phases 3 & 4

CALFED Proposal

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A. PSP COVER SHEET

Proposal # 2001-_____(Office Use Only)

Proposal Title: **Lower Clear Creek Floodway Restoration Project Phases 3 & 4**

Applicant Name: Western Shasta Resource Conservation District
Contact Name: Jeff Souza
Mailing Address: 3294 Bechelli Lane, Redding, CA 96002
Telephone: (530) 224-3250
Fax: (530) 224-3253
E-mail: WSRCD@snowcrest.net

Amount of funding requested: Phase 3: $5,652,724 Phase 4: $3,564,325 Total $9,217,049

Some entities charge different costs dependent on the source of the funds. If it is different for state or federal funds, list below.
State cost _____ Federal cost _____

Cost share partners? X Yes ___ No

Identify partners and amount contributed by each (for Phases 3&4):
Bureau of Land Management $300,000, Bureau of Reclamation/CVPIA $175,000

Indicate the Topic for which you are applying (check only one box).

- ❑ Natural Flow Regimes
- ❑ Nonnative Invasive Species
- ✓ **Channel Dynamics/Sediment Transport**
- ❑ Flood Management
- ❑ Shallow Water Tidal/Marsh Habitat
- ❑ Contaminants
- ❑ Beyond the Riparian Corridor
- ❑ Local Watershed Stewardship
- ❑ Environmental Education
- ❑ Special Status Species Surveys and Studies
- ❑ Fishery Monitoring, Assessment and Research
- ❑ Fish Screens

What county or counties is the project located in? Shasta County

What CALFED ecozone is the project located in? 4.1 - North Sacramento Valley – Clear Creek

Indicate the type of applicant:

- ❑ State agency
- ❑ Public/Non-profit joint venture
- ✓ **Local government/district**
- ❑ University
- ❑ Other
- ❑ Federal agency
- ❑ Non-profit
- ❑ Tribes
- ❑ Private party

Indicate the primary species which the proposal addresses (check all that apply):

- ❑ San Joaquin and East-side Delta tributaries fall-run chinook salmon
- ❑ Winter-run chinook salmon
- ✓ **Late-fall run chinook salmon**
- ❑ Delta smelt
- ❑ Splittail
- ❑ Green sturgeon
- ❑ White Sturgeon
- ❑ Waterfowl and Shorebirds
- ❑ Migratory birds
- ❑ Other listed T/E species:
- ✓ **Spring-run chinook salmon**
- ✓ **Fall-run chinook salmon**
- ❑ Longfin smelt
- ✓ **Steelhead trout**
- ❑ Striped bass
- ❑ All chinook species
- ❑ All anadromous salmonids
- ❑ American shad

Indicate the type of project (check only one box):

- ❑ Research/Monitoring
- ❑ Pilot/Demo Project
- ✓ **Full-scale Implementation**
- ❑ Watershed Planning
- ❑ Education

Is this a next-phase of an ongoing project? YES, Phases 3&4 of a 4-phase project

Have you received funding from CALFED before? YES

If yes, list project title and CALFED number:
Phase 2 of the Lower Clear Creek Floodway Rehabilitation Project, No. 98-F15.
Clear Creek Prescription, No. 99-N16.

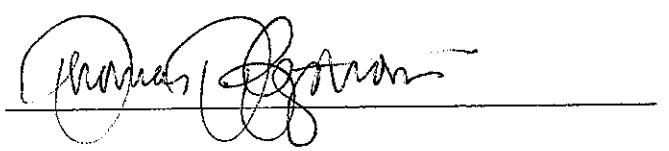
Have you received funding from CVPIA before? YES

If yes, list CVPIA program providing funding, project title and CVPIA number:
Lower Clear Creek (LCC) CRMP Organization, 6-FG-20-14240; LCC Erosion Inventory, 7-FG-20-14560; LCC Spawning Gravel, 7-FG-20-15290; LCC Fuel Inventory, 7-FG-20-14610; LCC Photogrammetry Survey, 7-FG-20-14720.

By signing below, the applicant declares the following:

- The truthfulness of all representations in their proposal;
- The individual signing the form is entitled to submit the application on behalf of the applicant (if applicant is an entity or organization); and
- The person submitting the application has read and understood the conflict of interest and confidentially discussion in the PSP (Section 2.4) and waives any and all rights to privacy and confidentiality of the proposal on behalf of the applicant, to the extent as provided in the Section.

Tom Engstrom, President, Board of Directors. WSRCD



B. EXECUTIVE SUMMARY

TITLE: Lower Clear Creek Floodway Restoration Project Phases 3 & 4

APPLICANT: Western Shasta Resource Conservation District
3294 Bechelli Lane, Redding, CA 96002
(530) 224-3250 Fax 224-3253, E-mail: wsrcd@snowcrest.net

REQUEST:
Phase 3: $5,652,724
Phase 4: $3,564,325
Total: $9,217,049

PARTICIPANTS AND COLLABORATORS:

Bureau of Reclamation	Natural Resources Conservation Service
U.S. Fish & Wildlife Service	California Department of Fish & Game
National Marine Fisheries Service	California Department of Water Resources
Bureau of Land Management	Western Shasta Resource Conservation District
National Park Service	Lower Clear Creek CRMP Group

SUMMARY DESCRIPTION PHASES 3 & 4:

Location: Lower Clear Creek, located in the 4.1 North Sacramento Valley Ecological Zone, Shasta County.

Problems: Lower Clear Creek has an extensive history of land-use impacts, including gold and aggregate mining, timber harvest, and construction of dams for water and power generation. Mining removed large volumes of aggregate from the channel and floodplains, and deposited the tailings on floodplain and terrace surfaces. The effects of aggregate extraction include: 1) substantial modification of planform and cross-sectional dimensions, resulting in sections of unstable, braided channels; 2) large in-channel and floodplain pits that entrap juvenile salmonids and support populations of predator fish; 3) permanent channel diversion into bedrock bypass channels; 4) impedance of bedload transport and spawning gravel supply; 5) reduction in spawning riffle area. Phase 1 has been completed; Phase 2A will have been completed by May 31, 2000; Phase 2B construction is scheduled to be completed by November 30, 2000 and the revegetation by April 1, 2001. Should Phase 3 not be funded, the entire 2001 contruction season would be lost.

Hypotheses: Restoring the natural form to the channel and floodplains will initiate and sustain natural sediment transport processes and channel migration, restore aquatic, wetland and riparian habitats, floodplain connectivity and riparian regenerative processes, and thus ecological function to the riverine ecosystem.

Objectives: The implementation of the balance of this project will accomplish these objectives:

- improve salmonid rearing and spawning habitat within the project reach;
- reduce juvenile salmonid stranding mortalities;
- improve adult passage conditions through the project reach upstream;
- restore native riparian vegetation on newly created floodplain surfaces;
- create favorable physical conditions for regeneration of native riparian species on restored floodplains;
- assess the effects of restoration activities on riparian associated wildlife communities;
- raise channel above bedrock hardpan, increasing alluvial storage within the bankfull channel; and
- recreate a properly sized alluvial channel morphology with adequate coarse sediment supply.

Uncertainties: Specific questions will be answered through the monitoring and adaptive management processes, such as: How is the channel location and morphology adjusting during high flow events? Are the restoration activities positively influencing at-risk fisheries species, native riparian species and associated wildlife communities?

Expected outcome: All objectives will be achieved with slight adjustments made as necessary, by using monitoring data and adaptive management tools and in consultation with the Technical Team.

Applicability to ERP: This project promotes the goal of improving and increasing aquatic and terrestrial habitats and ecological functions by addressing several ecosystem elements identified in the ERP, including natural sediment supply, establishment of stream meanders and natural floodplain processes, and restoration or riparian and riverine aquatic habitats.

C. PROJECT DESCRIPTION

Lower Clear Creek offers one of the best restoration opportunities of all the Central Valley tributaries for anadromous fish populations and a unique opportunity to fully implement an adaptive management process. This proposal outlines Phases 3&4 of a 4-phase strategy for restoring 2.9 miles of floodplain and riverine aquatic habitats in two locations on Lower Clear Creek. Of the four, Phase 3 is the most technically challenging due to endangered species issues, which requires the work be accomplished during a limited time-frame each year. Dozens of steps are involved in diverting each segment of the stream in order to protect fisheries and comply with water quality regulations. The scope of the proposal has expanded from the previous submission due to an increased emphasis on monitoring and education, as well as increased regulatory requirements due to recent salmonid listings.

1. Statement of the Problem

a. Problem

Historic instream aggregate extraction in a 1.9 mile reach (Mined Reach) of Lower Clear Creek removed natural point bars, floodplains, and riparian vegetation, leaving a multi-channeled, unconfined floodway with numerous ecological problems. The remaining 1.0 mile (Reading Bar Reach) is covered with dredger tailings, which confine the channel and prevent a functional floodplain from forming. The adverse effects of aggregate extraction include: 1) substantial modification of planform and cross-sectional dimensions, resulting in sections of unstable, braided channels; 2) large in-channel and floodplain pits that entrap juvenile salmonids and support populations of predator fish; 3) permanent channel diversion into bedrock bypass channels; 4) impedance of bedload transport and spawning gravel supply; 5) and reduction in the spawning riffle area.

Two dams interrupt coarse sediment supply to the channel below Whiskeytown Dam and Saeltzer Dam. Saeltzer Dam has filled with sediment and is scheduled for removal in 2000-2001 (feasibility study funded by CALFED Category III FY 1997).The supply and instream storage of coarse sediment below Whiskeytown Dam has decreased, and remaining deposits have coarsened. These impacts have reduced the quantity and quality of anadromous salmonid habitat. Additionally, instream aggregate extraction has physically removed large quantities of aggregate from the project reach, further decreasing instream coarse sediment supply to the point where the channel bed is resting on bedrock or clay hard-pan. This transition from alluvial channel to bedrock channel has reduced the quantity of salmonid spawning gravel deposits, which has lowered the potential salmonid spawning production of Lower Clear Creek.

Historically Clear Creek supported populations of spring-run, fall-run and late fall-run chinook salmon, and steelhead. Spring-run chinook no longer reproduce naturally in Clear Creek, likely a result of habitat destruction from mining and blocked access by Whiskeytown and Saeltzer Dams. Clear Creek is now managed for fall-run and late fall-run chinook salmon, and steelhead. Fall-run populations have fluctuated widely since 1951, from an estimated 10,000 adults in 1963 to fewer than 100 fish in 1978. Runs have been strong in the last five years, with escapements between 5,900 and 9,000 adult fish (ERPP 1998). Escapement numbers for late fall-run chinook are not available, because they spawn in winter months when spawning surveys are prohibitive. Steelhead populations are limited by lack of access to spawning and rearing habitats in the upper watershed above the dams, and by high instream temperatures during summer. Removal of Saeltzer Dam will allow access to an additional 10+ miles of oversummering habitat suitable for sustaining spring-run chinook and steelhead.

The Lower Clear Creek Floodplain Restoration Project was developed to address the two degraded reaches of Clear Creek (Figures 1 and 2): the 1.9 mile reach with extensive instream aggregate extraction activities (Mined Reach) and the 1.0 mile reach containing dredger tailings to be used as borrow materials (Reading Bar Reach), as well as an off-channel mined site (the Former Shooting Gallery). At the Mined Reach, extensive in-channel and floodplain aggregate extraction removed natural channel confinement,

creating multiple low-flow channels and large pits. The pits and lack of a defined channel, strands emigrating juvenile salmonids and discourages adult salmonid migration. The Reading Bar Reach was dredged for gold, and the tailings were deposited onto the floodplain confining the channel. Additionally, construction of Saeltzer Dam in 1903 and Whiskeytown Dam in 1963 disrupted natural streamflow patterns and greatly reduced coarse sediment supply to the channel. Cumulatively, these land-use impacts have degraded the Clear Creek channel and floodplains, reduced the quantity and quality of salmonid habitat, increased stranding and migrational mortality, reduced native riparian vegetation, sustained exotic vegetation, and generally degraded the Clear Creek ecosystem.

Recognizing gravel extraction processes have occurred in this area for many decades, it is infeasible to get the area back to its original form. Instead we are in the process of restoring its natural processes and function. The degraded ecological conditions, combined with reduced streamflow and sediment regimes, prevent natural rehabilitation at these two sites. Restoring the natural form to the channel and floodplains will initiate and sustain natural sediment transport processes and channel migration, restore aquatic, wetland and riparian habitats, floodplain connectivity and riparian regenerative processes, and thus ecological function to the riverine ecosystem. Riparian revegetation plans are designed to deliberately vary treatments to provide a range of substrate conditions, with different planting patterns and varying distances of planting from the channel. Monitoring water table elevations, root growth patterns and rates, and riparian establishment success will provide insights into the role of soil texture in root growth, riparian planting success and the ability of riparian plants to resist flood scour.

The Clear Creek Restoration Technical Team has identified the Mined Reach as a significant stressor to ecological health and anadromous fish production, including spring-run, fall-run, and late fall-run chinook salmon (*Oncorhynchus tshawytscha*), and steelhead (*Oncorhynchus mykiss*) populations. Therefore, this reach is a top priority restoration activity as identified in the ERPP and fisheries restoration element of the CRMP plan to restore river ecosystem health and robust salmonid populations. During restoration, a functional floodplain will be restored at Reading Bar Reach and wetland habitats are created at the Former Shooting Gallery as dredger materials are removed for channel and floodplain reconstruction at the Mined Reach. By implementing the project in this fashion, the three sites are restored simultaneously. (EP Objectives, Volume I, page 16-17).

The project is consistent with all planning documents being developed in response to legislatively mandated actions (S.B. 1086, S.B. 2261, and CVPIA) and supports the California Department of Fish & Game restoration plans for Lower Clear Creek. The project proposal fits together with other major investments in Clear Creek water, avoids the loss of gravel by reducing the sizes of pits, and ensures that when Saeltzer Dam is removed (2000-2001), the gravel behind it will be integrated in the bedload and not be swallowed by the pits.

Restoration Measures for Lower Clear Creek were outlined in the 1996 Watershed Analysis and included: implementing an instream flow schedule; dredging out and removal of Saeltzer Dam to allow effective fish passage; surface mine reclamation; spawning habitat restoration; upland restoration projects; Mule Mountain Shaded Fuelbreak; fuel load reduction; adding spawning gravel and other projects. The 1998 Watershed Management Plan outlined the goals for work in Lower Clear Creek as follows: perform major channel reconstruction in the heavily gravel-mined area below Saeltzer Dam; removal of Saeltzer Dam to open up 10 miles of new spawning habitat; injecting spawning gravel; reducing exotic vegetation; and scheduling water releases from Whiskeytown Dam. Other reports supporting the work on Lower Clear Creek include the 1999 Sediment Budget Report by NRCS; 1998 Stream Bank Erosion Inventory by NRCS; 1998 Fuel Vegetation Inventory by WSRCD, 1997; Spawning Gravel Restoration Pilot Project Report by WSRCD.

b. and c. Conceptual Model and Hypotheses Being Tested

The design document for this project, *The Channel Reconstruction, Riparian Vegetation, and Wetland Creation Design Document,* was prepared by McBain and Trush, Graham Matthews & Assoc. and North State Resources in June 1999 has been peer reviewed.

The Lower Clear Creek Restoration Technical Team developed the following project objectives and hypotheses on which monitoring and evaluation efforts are based:

- The objective is to improve salmonid rearing and spawning habitat within the project reach. (F-1)
  The hypothesis is implementation of the channel restoration project will increase the quality and quantity of salmonid (chinook salmon and steelhead trout) habitat within the project study area.
- The objective is to reduce juvenile salmonid stranding mortalities. (F-2)
  The hypothesis is implementation of the channel restoration project will decrease stranding induced mortality of adult and juvenile salmonids within the project reach.
- The objective is to improve adult passage conditions through the project reach upstream. (F-3)
  The hypothesis is implementation of the channel restoration project will improve passage conditions for adult salmon and steelhead trout through the project reach upstream.
- The objective is to restore native riparian vegetation on newly created floodplain surfaces. (R-1)
  The hypothesis is revegetation of the channel restoration activities will increase the quantity and diversity of native riparian vegetation on reconstructed floodplain surfaces.
- The objective is to create favorable physical conditions for regeneration of native riparian species on restored floodplains. (R-2)
  The hypothesis is implementation of the channel and floodplain restoration activities, combined with favorable hydrologic conditions during seed dispersal period, will increase natural regeneration of native riparian species on constructed floodplain surfaces.
- The objective is to assess the effects of restoration activities on riparian associated wildlife communities. (R-3)
  The hypothesis is salmonid restoration activities, which include improved channel-to-floodplain connectivity and restoration of native riparian vegetation, will positively influence riparian associated wildlife communities (aviafauna, herpetofauna, and mammals).
- The objective is to recreate a properly sized alluvial channel morphology. (G)
  The hypotheses are:
  + Coarse sediment will be mobilized by design bankfull flow (the bed moves). (G-1)
  + As the bankfull channel migrates or avules during flows approaching bankfull discharge and larger (the channel migrates). (G-2)
  + Flow exceeding design bankfull discharge will begin inundating constructed floodplains. (G-3)
  + Flows exceeding design bankfull discharge will begin depositing fine sediments (sand and silt) on constructed floodplains. (G-4)
- The objective is to raise channel above bedrock hardpan, increasing alluvial storage within the bankfull channel. (G-5)
  The hypothesis is subsequent high flows and sediment trapping by Saeltzer Dam will cause bankfull channel to begin incision.
- The objective is to recreate a properly sized alluvial channel morphology with adequate coarse sediment supply. (G-6)
  The hypothesis is as the bankfull channel migrates, coarse and fine sediments will deposit on the inside of meander bend, creating a new functional floodplain.

The project will improve the ecological health of Lower Clear Creek by initiating and sustaining sediment supply and transport capability, restoring channel migration ability, and restoring floodplain

connectivity. These processes are critical to CALFED priority species, including spring, fall, and late-fall chinook salmon, and steelhead populations. Overall salmonid production should increase, based on monitoring and evaluation results thus far, and continue to increase as a result of this project. The proposal is a long-term solution to large-scale problems in the project reaches, which will minimize future involvement. Additionally, the project is cost effective by coupling Mined Reach channel and floodplain restoration with the Reading borrow site and Former Shooting Gallery site rehabilitation.

d. Adaptive Management

The Lower Clear Creek Restoration Technical Team will form an Adaptive Management Team, which will constitute the flexible management framework that can generate, incorporate and respond to new information. See Chart #1. The Technical Team has been and continues to meet monthly for updates on the work taking place in the project area, address any issues or concerns, and plan for each step of implementation. The Adaptive Management Team will be reviewing all monitoring data and be the decision making body to determine alternate designs for future phases or to alter existing phases. At the end of three years, the Restoration Technical Team will assess in the final report whether additional funds will be needed for continued monitoring.

e. Education Objectives

K-14 Education Program

The K-14 educational component will be facilitated through the Clear Creek Field Station (CCFS), a collaborative project between Shasta-Tehama-Trinity Joint Community College District, Shasta County Office of Education's Whiskeytown Environmental School and the National Park Service. The Clear Creek Field Station is at Whiskeytown Environmental School on the National Environmental Education Development (NEED) Camp facilities within the 42,200+ acres of Whiskeytown National Recreation Area. The NEED Camp offers an ideal setting for the Field Station and for conducting environmental education pertaining to Clear Creek. The Camp is situated at the nexus of Upper and Lower Clear Creek, directly below Whiskeytown Dam. Clear Creek runs through the middle of the campus. The three collaborating entities of the CCFS are involved in and have students involved in working with numerous community groups and local, state, and federal agencies that are conducting research and restoration on Clear Creek. Their activities include a *high technological* water quality monitoring station on Paige Boulder Creek near its confluence with Clear Creek and a demonstration erosion control project designed to reduce sedimentation in Clear Creek. The latter project won a National Award.

All of the objectives of the K-14 component will increase students' knowledge and understanding of at-risk species, ecosystem processes and biotic communities, habitats, sediment and water quality. The objectives and corresponding tasks are:

Objective 1: Increase teachers' knowledge of Clear Creek and access to related curriculum and resources.
- Task: Develop curriculum units that incorporate the ERP goals.
- Task: Provide teacher workshops demonstrating how to use the curriculum.

Objective 2: Link teachers with resources to increase student learning relating to Clear Creek.
- Task: Provide a database of educational resources.
- Task: Coordinate resource professionals.
- Task: Disseminate educational resources to teachers.

Objective 3: Link practical applications to student learning.
- Task: Identify and link teachers/students with field lab opportunities and restoration and monitoring project opportunities.
- Task: Provide assistance in conducting field labs, restoration and monitoring projects.
- Task: Provide materials and equipment to conduct field labs, restoration and monitoring projects.

Outreach Education Program.

The scope and effectiveness of the restoration work on Lower Clear Creek is of interest to local, regional, and national audiences. As a model for landscape level restoration, this project offers valuable

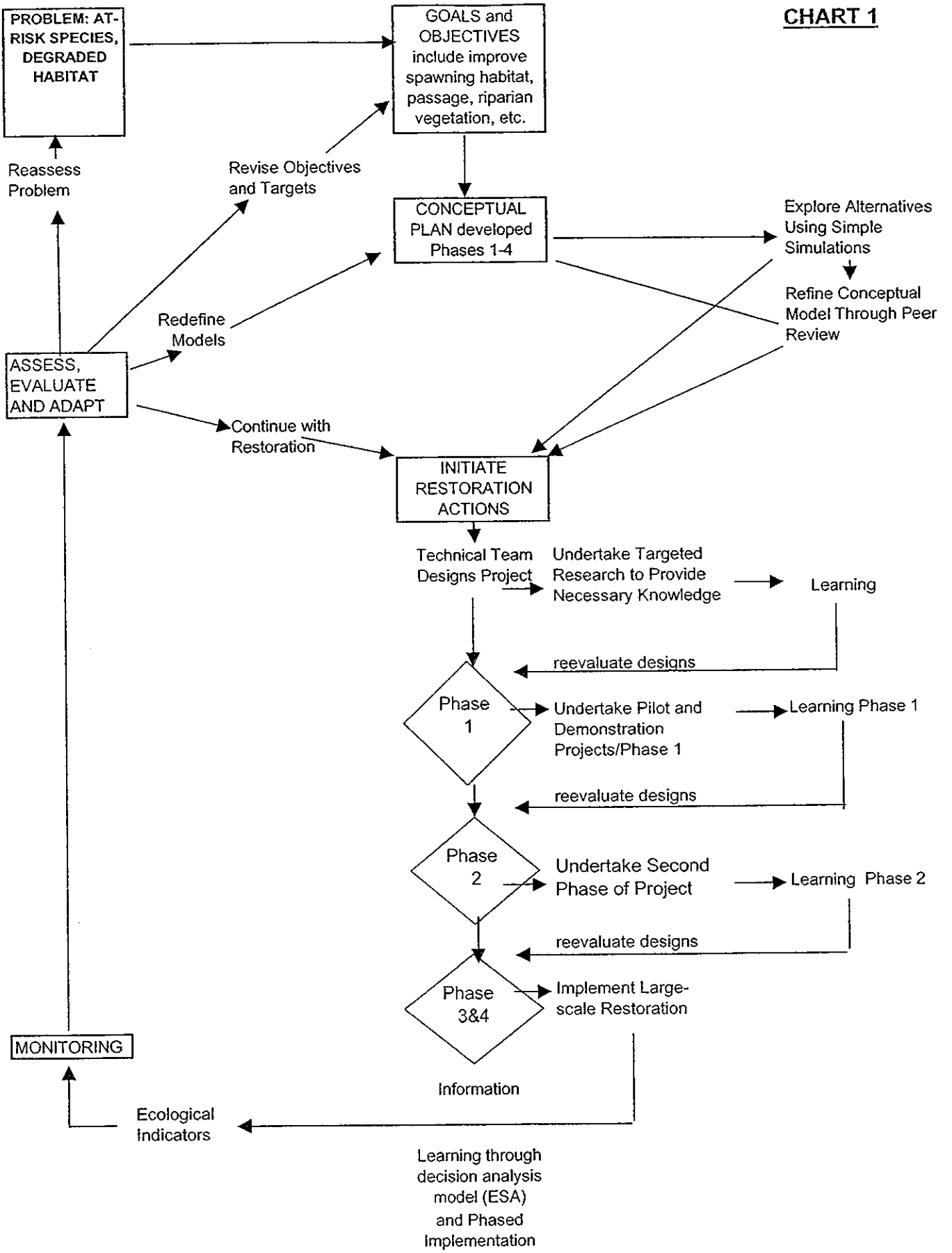


CHART 1
PROBLEM: AT-RISK SPECIES, DEGRADED HABITAT
GOALS and OBJECTIVES include improve spawning habitat, passage, riparian vegetation, etc.
Reassess Problem
Revise Objectives and Targets
CONCEPTUAL PLAN developed Phases 1-4
Explore Alternatives Using Simple Simulations
Refine Conceptual Model Through Peer Review
Redefine Models
ASSESS, EVALUATE AND ADAPT
Continue with Restoration
INITIATE RESTORATION ACTIONS
Technical Team Designs Project
Undertake Targeted Research to Provide Necessary Knowledge
Learning
reevaluate designs
Phase 1
Undertake Pilot and Demonstration Projects/Phase 1
Learning Phase 1
reevaluate designs
Phase 2
Undertake Second Phase of Project
Learning Phase 2
reevaluate designs
Phase 3&4
Implement Large-scale Restoration
MONITORING
Information
Ecological Indicators
Learning through decision analysis model (ESA) and Phased Implementation

lessons in managing the inter-relationships within a watershed, integrating multi-agency goals, and the wants and needs of the local community. Gravel and gold mining have had a tremendous impact on watershed ecosystems throughout California, so the lessons learned in this project and continued improvement of the restoration model, will make it more applicable to other areas of the state and the country.

The objective of the WSRCD's Education Program for the Lower Channel Floodway Restoration Project is to develop multi-media tools to communicate the effectiveness of landscape level watershed restoration using Lower Clear Creek as a model. The education tools will follow the process from concept, through Technical Team analysis, development, design, testing hypotheses, developing Phase 1 (the pilot), to full-scale implementation, while fine tuning the model through the monitoring and adaptive management processes.

Educational projects proposed in this application will be organized, directed and completed by WSRCD with input from the Technical Team, participants and collaborators. The education program includes:

Local: Watershed tours (2 per year); stakeholder workshops (2 per year); history booklet of the watershed project, including historical photos; brochures for presentations and watershed group meetings.

Regional: Technical papers on various aspects of the project will be presented at workshops and seminars throughout the region. Brochures for presentations; history booklet of the watershed project; slide show and PowerPoint presentation on these aspects of the project.

National: Half-hour video program produced in conjunction with the local PBS station in Redding, called "Watershed Restoration: The Clear Creek Model" marketed to Public Broadcasting Stations nationally.

2. Proposed Scope of Work

a. Location

Clear Creek originates in the Trinity Mountains and flows into Whiskeytown Lake (Elevation 1,210 ft) 11 miles west of Redding (Figure 1) in Shasta County. Lower Clear Creek flows southeast from Whiskeytown Lake for approximately 16 miles, and joins the Sacramento River near Redding (Figure 2). The total drainage area of Clear Creek upstream of the gaging station near Igo, CA is 228 mi^2. Clear Creek is part of the Trinity River Division of the Central Valley Project, and streamflows have been regulated by Whiskeytown Dam since 1963. Transbasin diversions occur from the Trinity River Basin through Whiskeytown Lake to the Sacramento River. The Lower Clear Creek watershed consists of approximately 42% public-owned land, of which 92% is administered by the National Park Service and the remaining administered by BLM, CDFG, and BOR.

b. Approach

The *Channel Reconstruction, Riparian Vegetation, and Wetland Creation Design Document* for the project, which has been peer reviewed, details the approach to be taken on each phase of the project and should be reviewed for a full understanding of the technical and scientific approach used in designing the project.

PHASE 3 (Figure 6) will reconstruct the bankfull channel from the upstream project boundary to below the south bank pond complex. The channel planform will be realigned and re-sized at specific locations and the channel-bed elevation raised off the hardpan clay substrate by introducing cleaned and sorted gravel. Fill material will primarily be acquired on-site from excavated areas, or removed from Reading Bar Reach. Newly created floodplains adjacent to relocated channels will be revegetated with native riparian species. Phase 3 restoration activities are timed to occur after the completion of Phase 2 (estimated fall of 2000), to incorporate potential changes in coarse sediment loading into the design.

PHASE 4 (Figure 7) completes the restoration of this degraded section of the channel. It will occur in the work season of 2003 at the downstream end of Mined Reach upon completion of Phase 3, and will restore flow to the historical channel that was diverted during aggregate extraction. The historic channel

meandered in a wide arch to the north of a broad floodplain. The diversion channel along the south bluff is deep, narrow, swift, and confined by bedrock, providing little or no salmonid habitat. This channel will be filled and converted to floodplain.

Approach at Mined Reach: Floodplain elevations will be designed to inundate at contemporary bankfull discharge. Heavy equipment, such as bulldozers, loaders, and dump trucks, will be used to fill off-channel ponds and construct a single-thread bankfull channel that is capable of transporting coarse bedload at bankfull discharge, allow channel migration, and encourage creation of alternate bars and floodplain surfaces. Once constructed, the project will correct several environmental problems, which include the following: newly created floodplains will be revegetated with native riparian species and provide additional habitat for amphibian and terrestrial wildlife species; and channel restoration will provide immediate spawning habitat for chinook salmon by introducing appropriately-sized spawning gravels.

Approach at Reading Bar Reach and Former Shooting Gallery Site: Restoration activities at Reading Bar will restore the floodplain surfaces, eliminate artificial channel confinement and create additional wetlands on upland areas located outside of the floodplain. A segment of riparian berm will be removed as a pilot evaluation of the potential for channel migration under contemporary flow regulation. Exotic vegetation will be removed and replaced with native riparian vegetation that will improve floodplain habitat. These restoration efforts will be coordinated with construction activities related to the removal of dredger materials needed for restoration of the Mined Reach downstream. Excavated surfaces will be revegetated with native riparian species. The Former Shooting Gallery is isolated from Clear Creek and restoration activities at this site involve the removal of dredger tailings and surface fill material to create off-channel wetlands. Off-channel wetlands will be designed and constructed to provide a diversity of habitat types which include shallow fresh water emergent vegetation, wet meadows, woody riparian communities and open water areas.

c. Monitoring and Assessment Plans

The Ecological Monitoring Plan (EMP) is the cornerstone of the Adaptive Management Plan. The EMP for the total Lower Clear Creek Floodway Rehabilitation Project was submitted to CALFED in March 2000 and is currently under peer review. The EMP evaluates and monitors whether geomorphic, biological, and riparian restoration objectives are being met. Results of the EMP will guide future restoration efforts through an adaptive approach supported by the responsible agencies. The Lower Clear Creek Restoration Technical Team recognizes the importance of monitoring, assessing both site-specific restoration projects and river-wide responses to habitat rehabilitation. Project specific monitoring will dovetail with ongoing documentation of salmonid stranding, salmonid habitat quality, and salmonid spawning habitat utilization. This project will include a detailed project-scale monitoring plan to evaluate whether geomorphic, salmonid, and riparian project objectives are realized.

Immediately after each construction phase is completed, as-built surveys will be conducted, and geomorphic, salmonid, and riparian monitoring will be initiated. Monitoring is scheduled to occur annually for three years after construction and annual monitoring reports will be submitted to CALFED presenting findings and addressing project progress. Certain aspects of geomorphic monitoring (i.e., cross section surveys, bed mobility experiments, design dimension verification) are dependent upon a high flow threshold (it makes no sense to monitor certain geomorphic parameters during low flow years). Monitoring methods, data format, and data evaluation will be consistent with CAMP and CMARP protocols.

The project also promotes the CALFED goal of using the adaptive management process as an integral component of restoration actions. Objectives of the monitoring process used in adaptive management includes documenting conditions, recognizing trends, assessing the causes of observed changes, partnering with agencies for scientifically-based adaptive management protocol, and continuing to reduce scientific uncertainties. The monitoring plan for Phases 3 & 4, recently submitted to CALFED and under peer review, displays a concerted effort to integrate existing interdisciplinary experience and scientific information into dynamic models that attempt to make predictions about the impacts of alternatives practices.

Monitoring efforts are anticipated to include multiple agencies, environmental consulting firms, academia, and resource volunteers working cooperatively under the guidance of a monitoring subcommittee of the Restoration Technical Team. Fishery resource monitoring elements will be conducted by USFWS offices in Red Bluff and Sacramento. The WSRCD will be responsible for implementation of monitoring elements identified for the riparian and geomorphic monitoring parameters. McBain and Trush, fluvial geomorphologists, Graham Mathews & Assoc., and North State Resources, Inc., consulting environmental scientists, assisted WSRCD in the development of specific monitoring plans for riparian and geomorphology. At the end of three years, the Restoration Technical Team will assess in the final report whether additional funds are needed to continue monitoring.

Point Reyes Bird Observatory (PRBO) collected baseline data in 1999 on the abundance, diversity, and reproductive success of songbirds, in the area where watershed/salmonid restoration activities are and will occur in the Lower Clear Creek watershed. Fully ten of the fourteen species identified by California Partners in Flight as "Riparian Focal Species" were present. Productivity estimates derived from mist netting and nest searching indicated many species had high reproductive success in 1999. Study plots and permanent monitoring stations were established to enable Point Reyes Bird Observatory to institute a monitoring plan to measure changes in the bird community to current salmonid restoration activities. Some of the primary objectives are to: contribute to restoration and management design and implementation using current knowledge of the requirements of birds in riparian habitats; increase and improve riparian habitat by revegetating and managing in such a way as to maintain a structurally diverse native plant community; provide information on the amount and proportion of each type of riparian habitat necessary to maintain a diverse and healthy bird community; and evaluate the influence of adjacent upland habitats on the riparian bird community. Work is performed April through August. Data from this monitoring plan will also be reviewed by the Adaptive Management Team.

d. Data Handling and Storage

Data handling and storage is being coordinated by WSRCD, with data components located at the appropriate agency office. Programs used for data storage include: Microsoft Word, Excel, AutoCad. The U.S. Fish & Wildlife Service will collect and store monitoring data on items such as fish counts, spawning habitat and fish passage. WSRCD will collect monitoring data on items such as coarse sediment mobilization, channel morphology, fine sediment deposition, channel profiles, channel dimension evolution, mapping vegetation success, and restored floodplain cross sections. WSRCD will be the central clearing-house for reports and data, which can be made accessible through e-mail and the WSRCD web site.

e. Expected Products and Outcomes

As the project continues, plans are to prepare technical papers and reports on particular areas of interest, such as the methods used in construction, construction management, monitoring results, planting techniques and more. Since this project is one of the first of its kind, the WSRCD and Technical Team recognize the information is highly relevant to many stream systems in California and in other western states. It is expected that the reports and technical papers will be welcomed at workshops, seminars, conferences, and other educational forums.

f. Work Schedule

The total project has been divided into four phases for implementation. Phase 1 was completed in October 1998 and began removal of borrow material from the Reading Bar Reach, and reduced salmonid stranding at the Mined Reach south pond complex. Phase 2 began in January 2000 and is currently in progress. It constitutes the majority of the earthwork, transporting borrow material from the Reading Bar Reach to fill extraction pits at the Mined Reach and restoring floodplain morphology. Restored floodplains will be revegetated in the spring of 2000 and spring of 2001 with native riparian species. Phase 3 construction is scheduled for summer of 2001 and summer of 2002 with revegetation in the spring of 2002 and spring of 2003. Phase 4 construction is scheduled for summer 2003 and revegetation in the spring of 2004.

Environmental documentation, permits and designs need to be performed approximately 6 to 12 months prior to each construction phase. Field stakeout and construction bidding is performed 1-2 months prior to construction. The proposed implementation schedule is summarized in Table 2 (after page 15).

g. Feasibility

i. Literature citations are found in the peer-reviewed document, *Lower Clear Creek Channel Reconstruction, Riparian Vegetation, and Wetland Creation Design Document,* prepared by McBain and Trush, Graham Matthews & Assoc., and North State Resources, June 1999. Additional scientific data has been obtained from *Neotropical and Resident Songbird Populations in the Lower Clear Creek Floodway Restoration Project,* December 1999;

ii. Implementability is dependent on the timely production of designs for Phases 3 & 4, which are being done by qualified consultants under a separate contract with the Bureau of Reclamation.

iii. Current Status of Permits. Many of the permits for all four phases are already in place. Permits required for Phases 3 and 4 include: **Permits in hand (X)** **Permits in process (IP)** **Permits needed (N)** **Not applicable (NA)**

	Phase 2A	Phase 2B	Phase 3&4
DFG 1600 Permit	NA	IP	N
Temporary Entry Permits From Landowners	X	X	N
RWQCB Waiver	X	IP	N
Reclamation Board Permit	X	X	X
NEPA Document	X	X	X
CEQA Document	X	X	X
Endangered Species Consultation (NMFS)	X	IP	N
Endangered Species Consultation (USFWS) (VELB)	NA	NA	N
California ESA (DFG)	X	IP	N
Army Corps of Engineers Permit	X	IP	N

iv. The Technical Team recognizes the recently-raised issue of potential mercury contained in mine tailings throughout northern California. A special committee from the Technical Team is being formed of representatives from RWQCB, UC-Davis, WSRCD, BOR, DFG, DWR, FWS to receive guidance on this issue.

The methods used to implement this project are already showing signs of success. Phase 1 has been completed, and the WSRCD is 40% finished with Phase 2. At this time WSRCD has a firm understanding of feasibility issues and what it takes to get work like this done on the ground. WSRCD is totally confident in the methods that are being used and the work that has been and continues to be accomplished. Many factors will contribute to the success of this restoration opportunity, including:

- a well-organized Lower Clear Creek CRMP, represented by private landowners, resource agencies, public participants, and other stakeholders;
- a developed broad-scoped CRMP plan;
- public ownership of virtually the entire floodway downstream of Whiskeytown Dam by US Bureau of Reclamation (USBR), US Bureau of Land Management (BLM), California Department of Fish and Game (CDFG), and the National Park Service (NPS);
- publicly owned dredger tailings on-site, which can be removed at low cost and used for short-term construction material and long-term gravel management;
- the near future removal of Saeltzer Dam;
- an established on-going gravel addition program;
- an established increased flow regime at Whiskeytown Dam; and
- CVPIA cost-sharing funds specifically allocated for Clear Creek restoration.

D. APPLICABILITY TO CALFED ERP GOALS AND CVPIA PRIORITIES

1. ERP Goals and CVPIA Priorities

The project is consistent with CALFED goals of improving and increasing aquatic and terrestrial habitats for at-risk species and improving ecological processes, and addresses several CALFED ecosystem elements and stressors described in the ERP. These elements include natural sediment supply, stream meander, natural floodplain and floodplain processes, Central Valley stream temperatures, riparian and riverine aquatic habitats, seasonal wetlands, chinook salmon, and steelhead trout. In addition, the ERP restoration vision for the Clear Creek ecological unit identifies habitat restoration as an integral step toward improving chinook salmon and steelhead production in Clear Creek (ERP Vol. II p. 170).

The general purposes of CVPIA are identified by Congress in Section 3402(a) to protect, restore, and enhance fish, wildlife, and associated habitats in the Central Valley and Trinity River basins of California. Section 3406 (b) 12 of CVPIA, P.L. 102-575 deals with the restoration of Clear Creek for the benefit of anadromous salmonids.

2. Relationship to Other Ecosystem Restoration Projects on Lower Clear Creek

Lower Clear Creek projects by WSRCD:

- Lower Clear Creek Watershed Analysis, 1995-96, funded by BLM, $50,928.
- Lower Clear Creek Watershed Management Plan, 1996-99, funded by NRCS $10,000 and BOR $48,000.
- Phase 1 began in 1998-1999, funded by the BOR, $310,000.
- Phase 2 began in 1999-present, funded by CALFED, managed by USFWS, $3,559,596.
- Soil Erosion Inventory began in1997-present; funded by BOR, $192,752.
- Spawning Gravel Injections began in 1997-present; funded by BOR, $408,000.
- Wetlands Mitigation began in 1998-present, funded by BLM $300,000 and BOR $30,000.
- Erosion Control Projects began in 1996-present, funded by BLM, $37,562.
- Shaded Fuel Breaks began in 1999-present; funded by BLM; cost $125,000.
- Igo Fuel Strategy Plan began in 1999-present, funded by CDF $7,667 and BLM $3,144.
- Igo Fuels Fire Safe Project began in 1999-present, funded by CDF, cost $9,033.
- Clear Creek Prescription (fuels and erosion control projects) began in April 2000, funded by CALFED through NFWF, $256,260.
- Clear Creek Gravel Injection, 1996-97, funded by BLM, $70,000.
- Jobs in the Woods, 1995-1999, funded by USF&WS, $100,000.
- Fuel Vegetation and Wildlife Habitat Inventory, 1996-1999, funded by BLM $30,000, BOR $15,112.
- Engineering Photogrammetry Survey, 1997, funded by BLM $34,262, BOR $39,087.

USFWS projects in Lower Clear Creek:

In Progress:

- Water Contaminants Study
- Bedload Transport Modeling
- Feasibility Study of Ecosystem Maintenance Stream Flows
- Clear Creek Steelhead Management Plan
- Steelhead Genetic Investigation
- Evaluation of Juvenile Chinook Habitat Use

Ongoing:

- Stream Channel Monitoring
- Monitoring of Adult Late-fall and Spring Chinook Salmon
- Monitor Juvenile Salmon and Steelhead Emigration by Rotary Screw Trap
- Monitor Salmon and Steelhead Stranding
- Evaluate Impacts of Increased Flows on Salmon and Steelhead

Completed:

- Real-time Flow and Temperature System Installation and Monitoring
- Multiple-site Temperature System Installation and Monitoring
- Floodplain Orthophotography and Contour Mapping
- Large Woody Debris Inventory
- Fluvial Geomorphic Studies of Clear Creek
- Evaluate Impacts of Increased Flows on Water Supply and Power Generation
- Modeling Whiskeytown and Clear Creek Flow/Water Temperature Relations

3. Requests for Next-Phase Funding

Funding of this proposal will complete Phases 3 & 4 of the four phases of restoration work in the Lower Channel of Clear Creek.

4. Previous CALFED or CVPIA Funding Awarded to WSRCD

a. CALFED No. 98-F15 for Phase 2 of the Lower Channel Project. Total $3,559,596. See page 17 for current status.
b. CALFED No. 99-N16 Clear Creek Prescription. Total $256,260. New grant effective 4-28-00.
c. CVPIA No. 6-FG-20-142401 for Lower Clear Creek (LCC) CRMP Organization. Total $55,700. Grant completed.
d. CVPIA No. 7-FG-20-14560 for LCC Erosion Inventory. Total $197,752. 90% complete.
e. CVPIA No. 7-FG-20-15290 for LCC Spawning Gravel $408,000. 90% complete
f. CVPIA No. 7-FG-20-14610 for LCC Fuel Inventory $15,111. Grant completed.
g. CVPIA No. 7-FG-20-14720 for LCC Photogrammetry Survey $39,087. Grant completed.

5. System-wide Ecosystem Benefits

Projects that have been completed or are planned for completion with a clear tie to the Lower Clear Creek Floodway Restoration Project are as follows:

- Flow increases from Whiskeytown Dam;
- Gravel injections to maintain spawning habitat when the ecosystem is restored;
- Erosion projects to reduce sediment in the stream;
- Fuels reduction projects to reduce sediment in the stream; and
- Removal of Saeltzer Dam as an impediment to upstream migration of anadromous fish (2000-01).

E. QUALIFICATIONS

1. Principal Participants

Jeff Souza has a B.S. in Environmental Biology from California Polytechnic State University, San Luis Obispo, a Masters of Science in Agriculture from CSU-Chico and has over ten years in experience in the field of resource management and restoration. He worked for Eco-Analysts from 1991-1995 conducting vegetation and wildlife surveys and preparing written reports for environmental assessments and permit requirements for development projects, conducted field surveys, reviewed EIRs, and assisted in preparing bid proposals, design and implementation of wetland and riparian restoration and monitoring projects. During the same timeframe he also worked at the Center for Geography and Planning at CSU-Chico as a Vegetation Ecologist and Photo Interpreter, supervising the mapping of riparian corridors and wetlands in Shasta and Tehama Counties using infra-red aerial photos as part of the Stream Corridor Protection Project involving the CDFG, CDWR, BOR and city and county planning agencies. From 1995-1996 Jeff worked as a Wildlife Biologist for Western Wildlife Services, coordinating several wildlife habitat restoration and enhancement projects, including design, installation and management of wetland, riparian and stream restoration projects. Jeff's Masters Thesis was a research project on the effect of riparian habitat fragmentation on species richness and relative abundance of medium-sized carnivores of the Sacramento River. As WSRCD Project's Manager since 1995, Jeff has managed over $2,000,000 in projects dealing with fisheries and wildlife restoration, erosion control, fuels reduction and coordinated resource planning. A list of grant projects implemented under Jeff's management is included in the attachments.

Gerry Hubatka, Civil Engineering Technician with the Natural Resources Conservation Service, has over 26 years experience in Watershed Assessment and Restoration work throughout the pacific states. He was among the first to work on the Trinity River Restoration Project starting in 1978, which included erosion inventory of the Grass Valley Creek Watershed, the design and implementation of erosion control measures, sediment removal from the Trinity River, road stabilization and abolishment, creek bank and fish habitat restoration. In addition, Gerry's work has included studies on Mount Saint Helen's ash impact on runoff and erosion after the eruption; emergency work on the Yukon River in Alaska; the inventory and design of erosion control measures on the Bear Creek Watershed in the Fall River Valley. He participated in the watershed assessment for Clear Creek, the erosion inventory, the implementation and design of erosion projects within the watershed, and placement of fish habitat improvement projects.

Jim DeStaso, Fisheries Biologist with the Bureau of Reclamation, received a Bachelor of Science Degree in Biology from William Paterson University in 1990 and a Master of Science Degree from the University of Wyoming in 1992. He worked as a fisheries biologist with the USFWS from 1993-1995 and was involved in juvenile chinook salmon monitoring within the Sacramento-San Joaquin Delta. Jim has been working with the Bureau of Reclamation at Shasta Dam since 1995 and is the program manager for the implementation of Clear Creek Restoration under the CVPIA.

Matt Brown, Fish Biologist with USFWS, received a Bachelor of Arts Degree in Biology from the University of California at Santa Cruz in 1986 and a Master of Science Degree from Arizona State University in 1990. He worked as a non-game fish biologist for the Arizona Game and Fish Department from 1990-1991and for FWS on threatened and endangered fish in New Mexico from 1991-93. Matt began work on chinook salmon at the Northern Central Valley Fish & Wildlife Office in January, 1994. His current work focuses on habitat restoration under the CVPIA and evaluating the impacts of water development.

Mark Gard, PhD, is the Instream Flow Branch Chief for the USFWS and will supervise data collection and habitat modeling efforts. Mark is a recognized expert in the use of IFIM and has over 10 years of experience in fisheries research.

Bill Lawhorn has a B.S. in Wildlife Management from Utah State University, 1969. His experience includes working for the Northern Prairie Wildlife Research Center for U.S. Fish and Wildlife Service 1969-1970, Refuge Management for Fish and Wildlife Service 1970-74, Bureau of Land Management Wildlife Biologist and Wildhorse Specialist in Colorado 1974 through 1980, BLM Area Wildlife Biologist in Redding, California 1980 to present. Job responsibilities have included wetland restoration and construction, waterfowl nesting, riparian restoration and hazardous waste spill response.

Mary Schroeder, RCD Administrative Manager, has a B.S. in Forest Industry Management from The Ohio State University and over 20-years of management experience in the pulp and paper, wood products, and power plant industries, including extensive experience in grant management, budgeting, planning, purchasing, supervision, contract negotiation and business management. From 1997-99 she worked for the City of Anderson in grant writing and management, CEQA and NEPA documentation, municipal code revisions and project analysis. From 1987-1996 she was the Fuel Manager at an 800,000 TPY wood-fired power plant, negotiating contracts with over 100 companies to purchase up to $22 million/year in wood waste to fuel power plants.

2. Scientific Contributors

The Lower Clear Creek Restoration Technical Team is comprised of representatives of various federal, state and local resource agencies. Although over thirty representatives attend the meetings at various times, the key participants are:

Jim DeStaso, Bureau of Reclamation
Matt Brown, U.S. Fish & Wildlife Service
Dan Free, National Marine Fisheries Service
Bill Lawhorn, Bureau of Land Management
Bud Ivey, National Park Service
Gerry Hubatka, Natural Resources Conservation Service
Harry Rectenwald, California Dept. of Fish & Game
Kevin Dossey, California Dept. of Water Resources
Jeff Souza, Western Shasta RCD

Designs for Phases 1 & 2 and the Conceptual Plan for Phases 3 & 4 were done by North State Resources, McBain & Trush, Graham Mathews & Assoc., and Stetson Engineers. Monitoring and evaluation will be done by WSRCD, USFWS, and PRBO. Adaptive Management will be done by the Adaptive Management Technical Team.

3. Planned Organization

The Western Shasta Resource Conservation District has been implementing wildlife and fisheries restoration projects, erosion control projects, fuels reduction projects, and coordinated resource planning projects in Shasta County since 1957. In 1999 the WSRCD was named "District of the Year" by the California Association of RCDs. In 1997 and 1998, WSRCD implemented numerous projects on Lower Clear Creek, including spawning gravel introduction, a watershed analysis, and erosion control projects. The WSRCD will coordinate the project with the Lower Clear Creek CRMP group and the Lower Clear Creek Restoration Technical Team. The Technical Team is composed of federal, state and local resource agencies and will provide technical guidance and input on restoration designs for this project.

The CRMP is composed of private landowners, stakeholder groups, and agency representatives. The CRMP will serve to give feedback from landowners and the public on restoration designs for this project.

4. Other Collaborators

Other groups who have been contributing to the success of the project, reviewing documents and providing input include the Horsetown Clear Creek Preserve Board of Directors, the Shasta County Office of Education – Whiskeytown Environmental School, and the Shasta-Tehama Bioregional Council.

5. Conflicts of Interest.

No potential conflicts of interest are anticipated.

F. COST

The scope of the proposal has expanded from the previous submission due to an increased emphasis on monitoring and education, we well as increased regulatory requirements due to recent salmonid listings. The grand total of Phase 3 is $5,752,724 and Phase 4 is $3,639,325 for a total of $9,392,049 of which $9,217,049 is requested from CALFED and $175,000 has been committed for final design and environmental permits by the U.S. Bureau of Reclamation pending CVPIA funding. Therefore, the total request from CALFED by phase is Phase 3: $5,652,724 and Phase 4: $3,564,325. Each phase can be implemented separately, but the individual phases are inseparable.

Historically, WSRCD has always performed grant projects at or below budget and recognizes the purpose of the contingency item in this budget is to cover significant unit cost changes that may occur through the life of the project, or to cover additional monitoring requested by CALFED, or any similar type of unexpected cost increase.

The proposed budget breakdown for Phases 3 and 4 is provided in Table 1, with a quarterly budget breakdown on Table 1A. The timeline for expenditures is shown in Table 2. This project is being implemented under the auspices of the Lower Clear Creek Restoration Technical Team and CRMP group, which should avoid any potential third party impacts. All phases, including restoration of the borrow site, are entirely on public land, which will further reduce any likelihood of third party impacts.

1. Budget Detailed by Year See Table 1

2. Budget Detailed by Quarter See Table 1A

3. Expenditure Timeline See Table 2

4. Requested Details

	SALARIES annual	BENEFITS including WC & Taxes	TIME ON THIS PROJECT
Projects Manager –	50,754	27.8%	70%
Assistant Projects Manager	42,000	30.2%	60%
2 Lead Technicians	24,116 each	35.7%	70%
Secretary	18,635	16.6%	40%

3-YEAR PROJECT MANAGEMENT TASKS:	% Time On This Project (out of 100%):
Working with project designers	10
Working with consultants on permits	10
Working with Technical Team	10
Budgeting, reviewing and updating budget	5
Preparing bid documents	10
Contract management	15
Hiring, training field technicians	10
Assigning work	5
Inspection of work in progress	10
Preparing progress reports	5
Oversee monitoring program	10

BENEFITS: (fully loaded) 16.6 to 35.7% depending on the Worker's Compensation category.
TRAVEL: to and from job site, to special workshops specific to the work being done on this project.
SUPPLIES: examples: small tools, straw, tape, safety accessories, chain saw repair, copies, blueprints,

photo developing, prints, gasoline, stakes, nuts, bolts, screws, lumber, reveg netting, drill bits, wire, chainsaws, pruners, small hand saws, safety flagging.

PUBLIC WORKS CONTRACTS which are expected to be bid out for this project:

- moving gravel and filling pits, realigning the channel, all of which requires large graders, bucket loaders and trucks, work typically done by an excavating company;
- digging holes and planting vegetation previously cut in the area and held in cold storage, requires backhoe and special planting equipment, work typically done by a commercial landscaping company;

SERVICE CONTRACTS which are expected to be bid out for this project:

- stakeout and surveys, work typically done by an engineering or survey firm;
- monitoring work that has been done and will be completed under these phases of the project, requires technical expertise in specific areas such as hydrology, geology, revegetation, work typically done by a consulting company which has qualified specialists in their organization;

SERVICE CONTRACTS expected to be single-sourced, include:

- K-14 education program, to be contracted to Whiskeytown Environmental School due to their unique location and operation, field research station and collaboration with Shasta College.
- producing, editing and marketing a television program entitled "Watershed Restoration – The Clear Creek Model" to be contracted to Public Broadcasting Station KIXE in Redding, due to the importance of making a PBS quality film on the restoration work, which requires a qualified field and studio videographer, professional editor, commercial studio equipment, expertise of a PBS Programming Manager, and a satellite distribution system. See attached letter of interest.

EQUIPMENT PURCHASES >$1000 and >3 year life: a computer for monitoring data and storage; digital camera for recording project work; other specialized monitoring equipment; ATV for accessing floodplain revegetation and monitoring sites.

OVERHEAD RATE of 15% covers a portion of WSRCD indirect costs. Indirect personnel include: 90% of Administrative Manager $43,508/year; Fiscal Officer $31,417/year; 60% of Secretary $11,181/year. Other indirect expenses apportioned to all WSRCD grants include: rent $973/month, electricity $210/month, postage $140/month, insurance $216/month, janitorial service and supplies $125/mo, phones $250/mo, office equipment $125/month, office supplies $250/month, copier/fax purchase $594/month.

COST SHARING COMMITMENTS: A significant level of cost sharing has occurred to date and will continue through the end of the total project.

Agency	For	Amount
BLM	Phase 1	$ 30,000
	Phases 2, 3, 4	300,000
CVPIA	Phase 1	340,000
	Draft Designs for Phases 2, 3, 4 and Final Designs for Phase 2	570,000
	Pending availability of funds, final designs for Phases 3 & 4	175,000
BOR	As-built surveys	12,000
CALFED	Phase 2	3,559,596
BOR	Point Reyes Bird Observatory- Songbird Studies	27,997
BLM	"	8,000
Nature Conservancy	"	3,000
PG&E	"	1,000
Packard Foundation	"	10,000
	Cost Sharing To Date:	**$ 5,036,593**

	DIRECT SALARY AND BENEFITS	SERVICE CONTRACTS	MATERIAL AND ACQUISITION COSTS	MISC AND OTHER DIRECT COSTS	OVERHEAD AND INDIRECT COSTS	TOTAL COSTS
Phase 3						
1. Design, stakeout, surveys and permitting	$0	$176,956	$0	$0		$176,956
2. Construction	$0	$10,000	$2,759,028	$0		$2,769,028
3. Construction supervision	$45,000		$5,000			$50,000
4. Riparian Revegetation	$50,000	$15,000	$302,500			$367,500
5. Geomorphic, avian, and riparian monitoring (3 years)	$75,000	$300,000	$30,000			$405,000
6. Education (3 years)	$44,928	$257,500	$48,700			$351,128
7. Contingency	$0	$0	$0	$762,757		$762,757
8. Project management	$110,000	$0	$10,000			$120,000
					Subtotal	**$5,002,369**
9. Indirect costs @ 15% of Direct costs	$0	$0	$0	$0	$750,355	$750,355
CVPIA Cost-share(if funded)		-$100,000				-$100,000
Phase 3 Total:	**$324,928**	**$659,456**	**$3,155,228**	**$762,757**	**$750,355**	**$5,652,724**
Phase 4						
1. Design, stakeout, surveys and permitting	$0	$115,217	$0	$0		$115,217
2. Construction	$0	$7,000	$1,877,090	$0		$1,884,090
3. Construction supervision	$20,000		$5,000			$25,000
4. Riparian Revegetation	$20,000	$20,000	$115,000			$155,000
5. Geomorphic, avian, and riparian monitoring (2 years)	$50,000	$200,000	$20,000			$270,000
6. Education (2 years)	$5,000	$87,300	$5,000			$97,300
7. Contingency	$0	$0	$0	$498,023		$498,023
8. Project management	$110,000	$0	$10,000			$120,000
					Subtotal	**$3,164,630**
9. Indirect costs @ 15% of Direct costs	$0	$0	$0	$0	$474,695	$474,695
CVPIA Cost-share(if funded)		-$75,000				-$75,000
Phase 4 Total:	**$205,000**	**$354,517**	**$2,032,090**	**$498,023**	**$474,695**	**$3,564,325**
GRAND TOTAL:	**$529,928**	**$1,013,973**	**$5,187,318**	**$1,260,780**	**$1,225,050**	**$9,217,049**

Table 1. Projected Budget for Phases 3 and 4.

Phase 3		QUARTERLY BUDGET JAN-MAR 01	QUARTERLY BUDGET APR-JUN 01	QUARTERLY BUDGET JUL-SEP 01	QUARTERLY BUDGET OCT-DEC 01	QUARTERLY BUDGET JAN-MAR 02	QUARTERLY BUDGET APR-JUN 02	QUARTERLY BUDGET JUL-SEP 02	QUARTERLY BUDGET OCT-DEC 02	QUARTERLY BUDGET JAN-MAR 03	QUARTERLY BUDGET APR-JUN 03	QUARTERLY BUDGET JUL-SEP 03	QUARTERLY BUDGET OCT-DEC 03	TOTAL COSTS
TASKS														
TASK 1	Design	$50,000	$50,000			$38,478	$38,478							$176,956
TASK 2	Construction			$1,759,028				$1,010,000						$2,769,028
TASK 3	Const Supv			$25,000				$25,000						$50,000
TASK 4	Riparian Rev				$50,000	$133,750			$50,000	$133,750				$367,500
TASK 5	Monitoring	$55,000	$50,000	$50,000	$50,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$405,000
TASK 6	Education	29,981	32,731	58,831	34,231	$29,481	$29,731	$29,731	$29,735	$9,244	$9,494	$44,494	$13,444	$351,128
TASK 7	Contingency			381378				$381,379						$762,757
TASK 8	Management	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$120,000
TASK 9	Indirect	$21,747	$21,410	$342,636	$21,635	$35,506	$15,481	$222,167	$17,210	$26,699	$6,674	$11,924	$7,267	$750,355
CVPIA Cost-share(if funded)		-$50,000				-$50,000								-$100,000
Phase 3 Total:		**$116,728**	**$164,141**	**$2,626,873**	**$165,866**	**$222,215**	**$118,690**	**$1,703,277**	**$131,945**	**$204,693**	**$51,168**	**$91,418**	**$55,711**	**$5,652,724**

Phase 3		QUARTERLY BUDGET JAN-MAR 03	QUARTERLY BUDGET APR-JUN 03	QUARTERLY BUDGET JUL-SEP 03	QUARTERLY BUDGET OCT-DEC 03	QUARTERLY BUDGET JAN-MAR 04	QUARTERLY BUDGET APR-JUN 04	QUARTERLY BUDGET JUL-SEP 04	QUARTERLY BUDGET OCT-DEC 04	QUARTERLY BUDGET JAN-MAR 05	QUARTERLY BUDGET APR-JUN 05	QUARTERLY BUDGET JUL-SEP 05	QUARTERLY BUDGET OCT-DEC 05	TOTAL COSTS
TASKS														
TASK 1	Design	$65,217	$50,000											$115,217
TASK 2	Construction			$1,884,090										$1,884,090
TASK 3	Const Supv			$25,000										$25,000
TASK 4	Riparian Rev				$50,000	$105,000								$155,000
TASK 5	Monitoring					$33,750	$33,750	$33,750	$33,750	$33,750	$33,750	$33,750	$33,750	$270,000
	Education	$16,825	$16,825	$24,325	$24,325	$7,500	$7,500							$97,300
TASK 6	Contingency			$498,023										$498,023
TASK 7	Management	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$120,000
TASK 8	Indirect	$13,806	$11,524	$366,216	$12,649	$23,438	$7,688	$6,563	$6,563	$6,563	$6,563	$6,563	$6,563	$474,695
CVPIA Cost-share(if funded)		-$50,000	-$25,000											-$75,000
Phase 4 Total:		**$55,848**	**$63,349**	**$2,807,654**	**$96,974**	**$179,688**	**$58,938**	**$50,313**	**$50,313**	**$50,313**	**$50,313**	**$50,313**	**$50,313**	**$3,564,325**

Table 1a. Quarterly Budget for Phases 3 and 4.

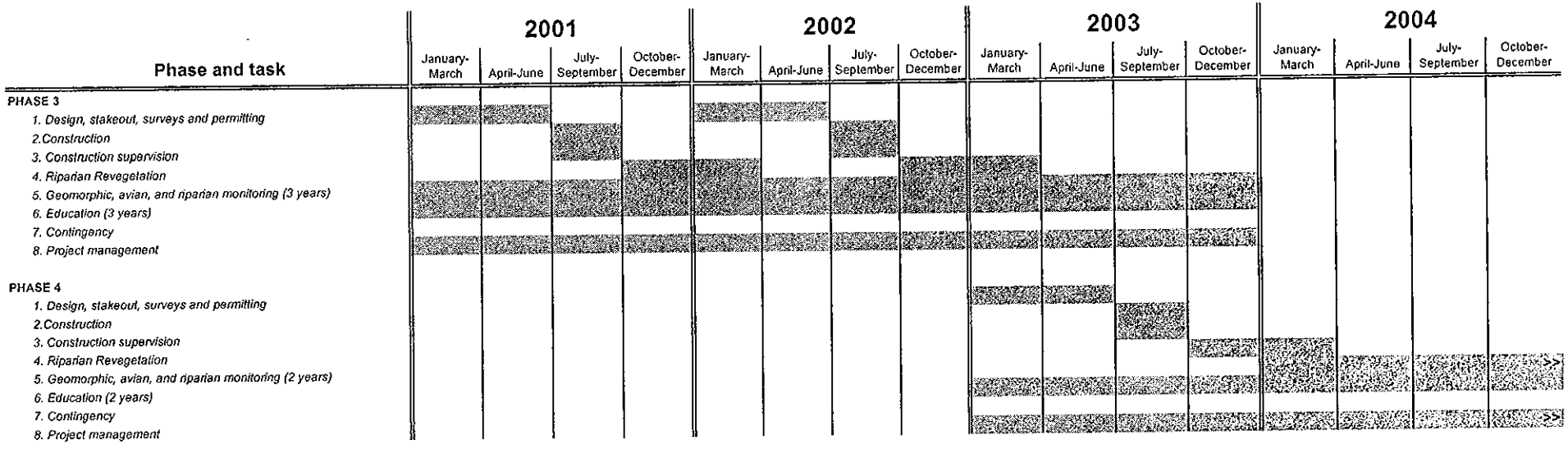


Table 2. Proposed project scheduling for Phases 3 through 4.

G. LOCAL INVOLVEMENT

This project has been presented by the Lower Clear Creek Restoration Technical Team to the Lower Clear Creek Coordinated Resource Management Planning (CRMP) Group, which provides a mechanism for private stakeholder participation and fully supports this proposal. The Shasta County Board of Supervisors has been an avid supporter of the work being done in the Clear Creek Watershed. Periodic reports will continue to be made to the board. A letter of their support is attached. The Shasta-Tehama Bioregional Council, a 9-year old organization of state/federal/local agencies, industry, businesses, conservation organizations, local elected officials, labor, the academic community, and the general public, continues to avidly support the restoration of Lower Clear Creek.

Stakeholder groups continue to be brought into the process through quarterly meetings of the Lower Clear Creek CRMP Group (involving landowners, residents, and any stakeholders interested in activities in the watershed) including Shasta Fly Fishers, NorCal Fishing Guides & Sportsman's Assn., Shasta Sportsman, Shasta College, Horsetown Clear Creek Preserve, Shasta Historical Society, Whiskeytown Environmental Education Camp, Shasta Paddlers, Native Plant Society, Shasta County Farm Bureau, Shasta Wildlife Rescue, Redding Mountain Bikers, Black Powder, Redding Rancheria. Businesses in the CRMP Group include: J. F. Shea Sand and Gravel, Salix Applied Earthcare, Schmitt Equipment Sales, and Sunrise Excavation, Osprey Excursions, and Bob's Guide Service.

H. COMPLIANCE WITH TERMS AND CONDITIONS

The WSRCD will comply with the state and federal standard terms.

I. LITERATURE CITED

Benefits of Increased Minimum Instream Flows on Chinook Salmon and Steelhead in Clear Creek, 1996, USFWS; *Central Valley Fish & Wildlife Management Study: Evaluation of the Benefits and Costs of Improving the Anadromous Fishery of Clear Creek*, 1986, BOR; *Clear Creek Fishery Study*, March 1986, DWR; *Conference Proceedings on Decomposed Granitic Soils: Problems and Solutions*, 1992, UC-Davis; *Jurisdictional Delineation of Waters of the U.S. for the Lower Clear Creek Floodway Rehabilitation Project, Phases 2-4*, 1999, North State Resources; *Lower Clear Creek Spawning Gravel Restoration Pilot Project,* 1996-97, Final Report, June 1997, WSRCD; *Procedure for Determining Flows to Maintain Chinook Redds, Lower Clear Creek,* 1997, NRCS; *Restoration Plan for the Anadromous Fish Restoration Program: A Plan to Increase Natural Production of Anadromous Fish in the Central Valley of California*, 1997, USFWS and BOR; *Restoring Central Valley Streams: A Plan For Action*, 1993, DFG; *Status of Actions to Restore Central Valley Spring-run Chinook Salmon: A Special Report to the Fish & Game Commission*, 1996, DFG; *Status Review of the Spring-run Chinook Salmon in the Sacramento River Drainage*, 1998, DFG; *Steelhead Restoration and Management Plan for California*, 1996, DFG; *Wetland Habitat Mitigation Plan Lower Clear Creek Floodway Restoration Project, Phase 1,* 1999, North State Resources; *Lower Clear Creek Floodway Rehabilitation Project Channel Reconstruction, Riparian Vegetation, and Wetland Creation Design Document,* 1999, McBain & Trush, Graham Matthews & Assoc., North State Resources; *Lower Clear Creek Watershed Analysis* 1996, WSRCD; *Lower Clear Creek Watershed Management Plan*, 1998, Lower Clear Creek CRMP; *Photographic Survey of Lower Clear Creek*, 1998, WSRCD; *Sediment Budget for Lower Clear Creek,* 1998, WSRCD; *Soil Bank Erosion Inventory for Lower Clear Creek,* 1998, WSRCD; *Fuel Vegetation Inventory for Lower Clear Creek*, 1999, WSRCD; Quarterly Project Reports by WSRCD to CALFED for Phase 2: July 1999, October 1999, January 2000, April 2000.

J. THRESHOLD REQUIREMENTS

Letters of Notification have been sent to the Shasta County Board of Supervisors, and the Shasta County Planning Department.

PREVIOUS PHASES FUNDED
PROGRESS REPORT ON PHASES 1 & 2

PHASE 1

Funded by BLM and BOR, this phase consisted of constructing a large berm to isolate salmon from a pond on the south side of the creek that created the largest stranding problem. It was completed in 1998 based on designs completed by McBain & Trush, Graham Matthews & Assoc., and North State Resources under a contract with the Bureau of Reclamation. The work on Phase 1 (Figure 4) included: WSRCD staked both the plug and borrow sites. The plug covered approximately six acres and had a volume of 27,500 cubic yards. The height of the plug is approximately four feet above the low water surface elevation. Most of the plug was constructed with raw dredger tailings taken from the borrow site on BLM land upstream. The upstream surface of the plug was constructed at a 4:1 slope. To reduce the potential for erosion, the head of the plug was transplanted with riparian vegetation obtained on site prior to the construction. The streamside of the plug, along the northern edge, was designed with a more gradual 10:1 slope.

PHASE 2

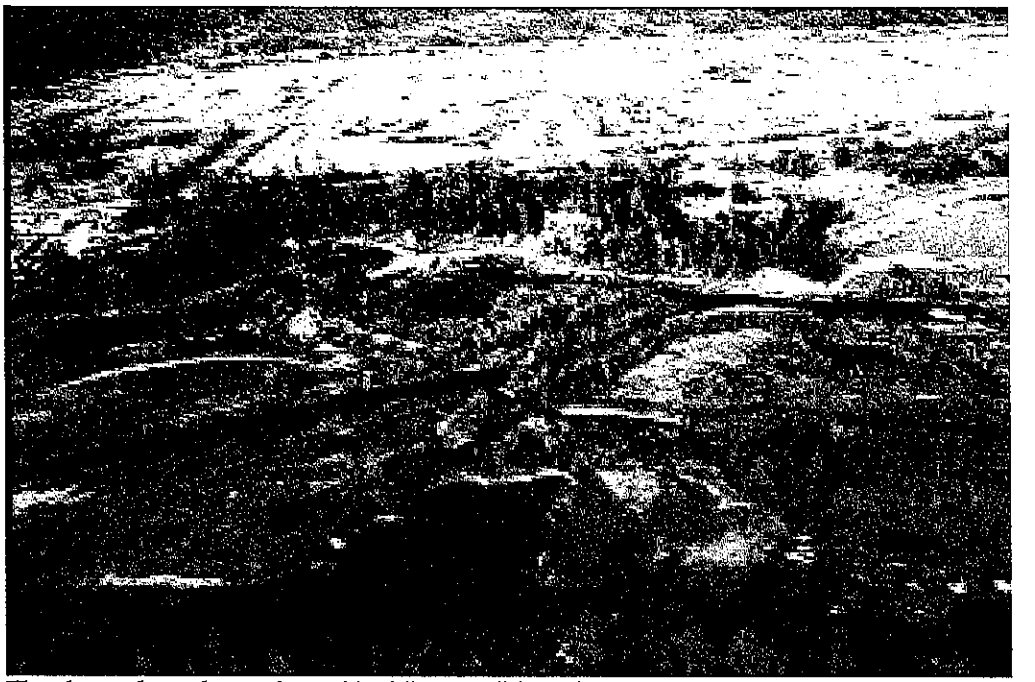
Funded by CALFED, this phase (Figure 5) consists of filling gravel extraction pits within the floodway with gravel obtained from the Reading Bar and Former Shooting Gallery borrow sites. The pits are being filled to an elevation desired for a floodplain surface that is frequently inundated by high flows and much of the floodplain surface is being constructed with silty soils conducive to riparian regeneration. Native wood riparian vegetation is being planted on the reconstructed floodplains. This actively is restoring a natural channel and floodplain morphology and revegetating the newly created floodplain to provide immediate relief for passage and stranding problems for chinook salmon and restored floodplain habitat for amphibians and terrestrial wildlife species.

For practical purposes Phase 2, which fills three ponds, was split into Phase 2A&B. Phase 2A filled one pond and construction has been completed. Revegetation of Phase 2A will be completed by May 31, 2000. Phase 2A is 40% of the total work of Phase 2. The Technical Team will develop a monitoring plan and scope of work and bid out the monitoring job. Phase 2B fills two ponds and the revegetation designs and permits are in process.

Key Points:

- Significant work went into on-the-ground layout and organization of Phase 2A, followed by development of a public works contract and bid documents.
- The NEPA and CEQA public review processes were completed, which covers Phases 3&4 also. Environmental permits and bid documents were provided to WSRCD through an outside contract with the Bureau of Reclamation four months late.
- Bid documents for Phase 2A were completed. The job was put out to bid and awarded to Sunrise Excavating, Inc. Construction began in mid-January 2000.
- WSRCD collected over 20,000 vegetation cuttings (Cottonwood and Willow) which were placed in cold storage for the revegetation of Phase 2A. To reduce transportation costs to the only cold storage unit large enough to hold this volume of cuttings (in Chico), a refrigerated trailer was purchased and connected to electricity in the vicinity of the project site.
- Monitoring was originally set to begin in Phase 3, but the Technical Team felt it was important to begin monitoring revegetation in Phase 2A, and received approval from CALFED to use contingency funding to begin this task.
- A grade check for Phase 2A construction was completed.
- The attached photos show some of the work done on Phases 1 & 2A.

LOWER CLEAR CREEK FLOODWAY REHABILITATION
PHASE 1 AND PHASE 2A

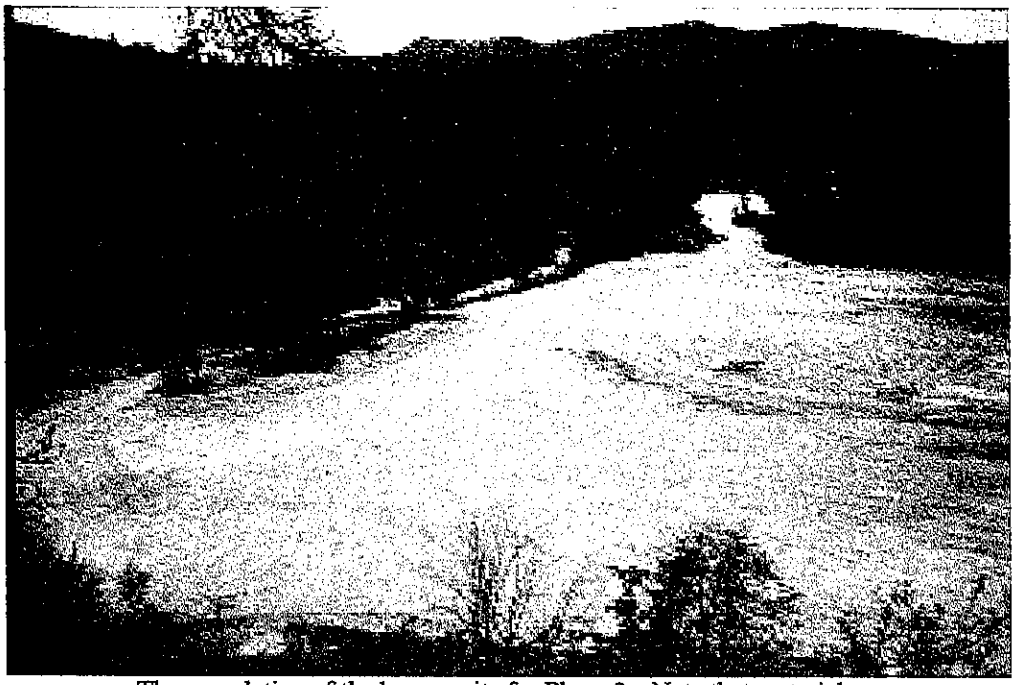


The above photo shows channel braiding conditions due to past gravel extraction and mining. Photo was taken before any construction was done for the Floodway Rehabilitation Project.

The completion of the plug area for Phase 1. (In the center of the photo where it is bare and discolored).

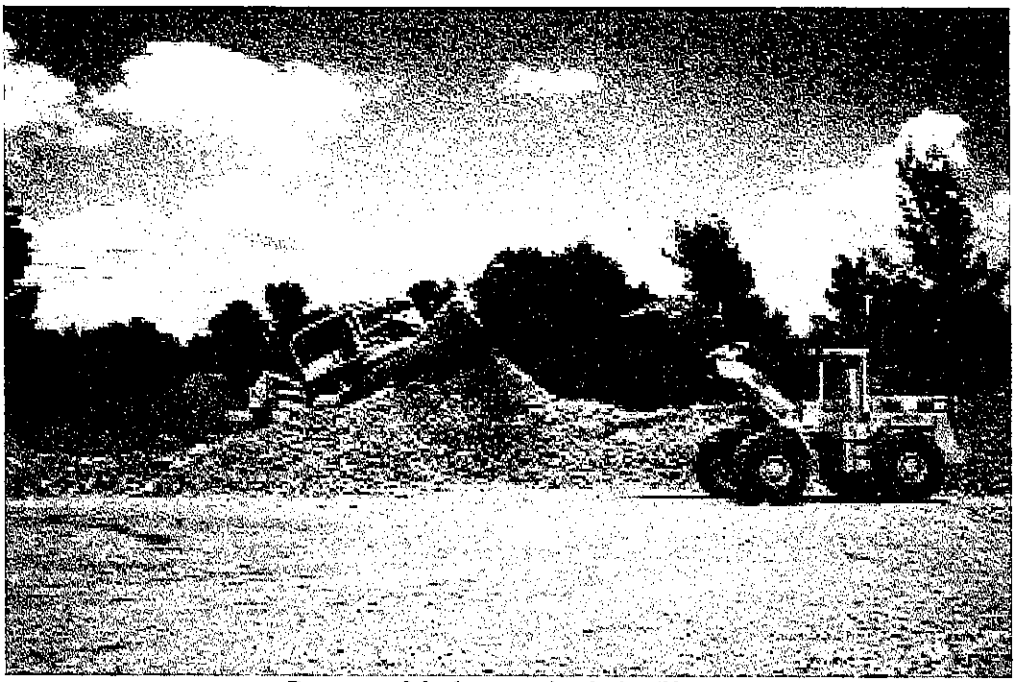
The completion of the plug area for Phase 2a. (The area at center left edge of photo is portion of plug from Phase 1).

The completion of the plug site for Phase 2a.



The completion of the borrow site for Phase 2a. Note that material was taken from this area for both Phase 1 and Phase 2a. Area is no longer to be used as a borrow site. Photo shows west portion of project area for borrow site.

The above photo shows east portion of borrow site after completion.



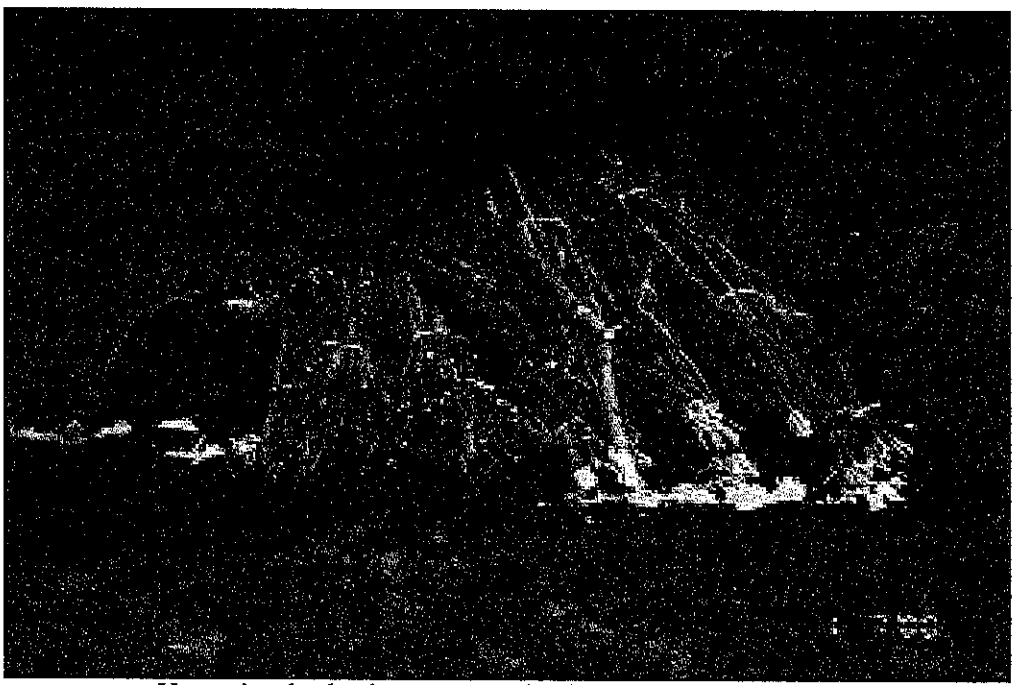
Progress of the borrow site during Phase 1.

The same general area as the previous photo only during Phase 2a.

Section of the plug site before construction.
Note the power towers in the background.

The same section as the previous photo during construction of Phase 2a.
Note the power towers.

Vegetation clippings that are being processed for the revegetation
Phase of the Floodway Rehabilitation Project.



Vegetation that has been processed. The tops are dipped in paint
to help seal them as well as provides a means of species identification.

The photos above show the re-vegetation of Phase 2a in progress.

Western Shasta Resource Conservation District

APPENDIX

FIGURES

1 Clear Creek Project Location
2 Clear Creek Reading Bar and Mined Reach Locations
3 Reading Bar Phases 1-4
4 Mined Reach Reconstruction Site Phase 1
5 Mined Reach Reconstruction Site Phase 2
6 Mined Reach Reconstruction Site Phase 3
7 Mined Reach Reconstruction Site Phase 4

ATTACHMENTS

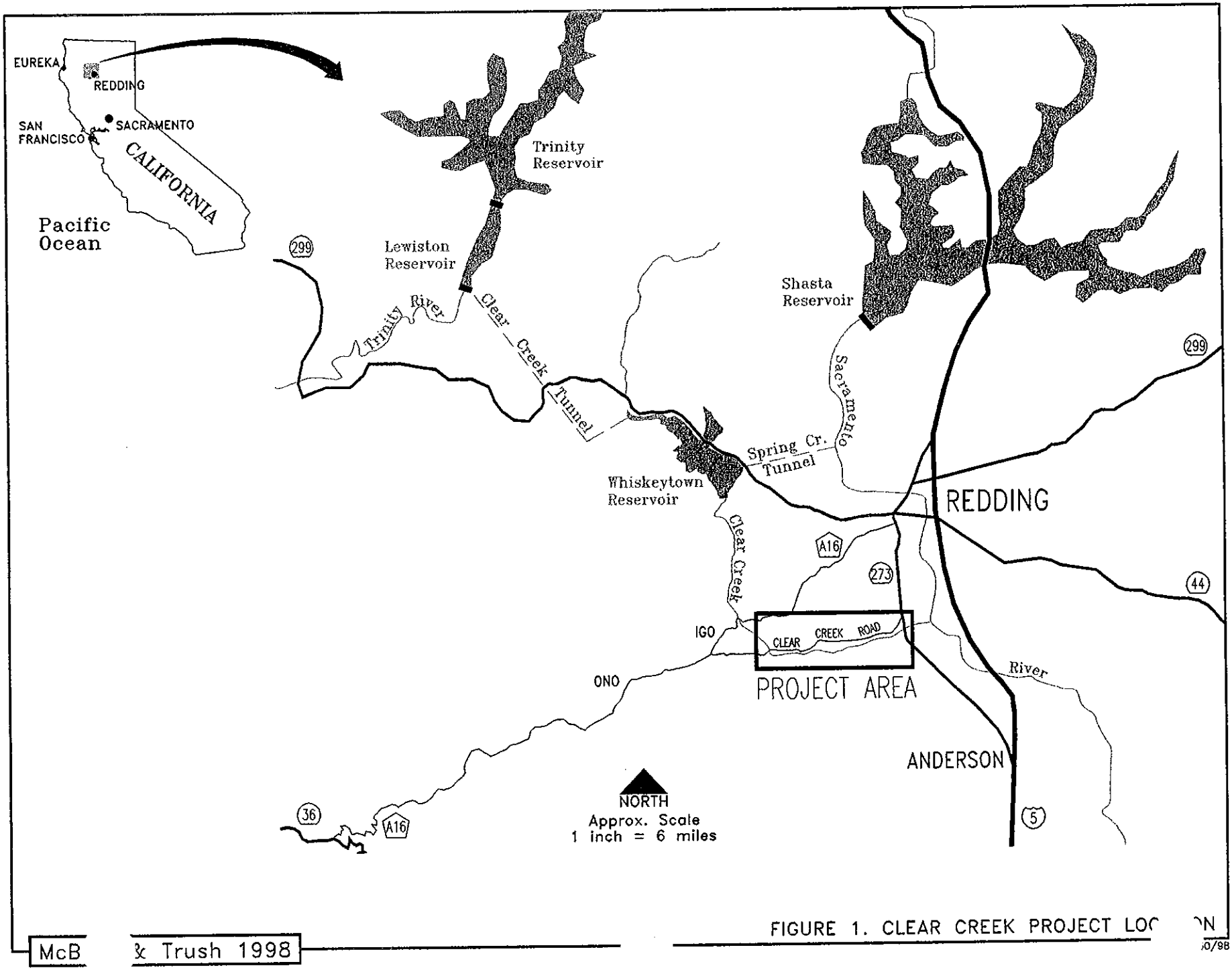
A. Quad Map for Lower Clear Creek
B. Local Notification Letters - Shasta County Board of Supervisors and Shasta County Planning Department
C. Cover, Table 1 and plates from Ecological Monitoring Plan currently under review by CALFED
D. Permissions
E. Backup Calculations to Budget - Phase 3
Phase 4
Education Program
F. Letters of Support – Shasta County Board of Supervisors
U.S. Congressman Wally Herger
U.S. Senator Dianne Feinstein
California Assemblyman Dick Dickerson
California Senator Maurice Johannessen
Public Broadcasting Station KIXE – Channel 9
WSRCD Resolution #00-05
G. Environmental Compliance Checklist
H. Proposal Requirements: Std. 19 Nondiscrimination Compliance
DWR 4206 Noncollusion Affidavit
SF 424 for Phase 3
SF 424 for Phase 4
I. WSRCD Projects Implemented Under Project's Manager, Jeff Souza
J. Scientific Contributors to Phases 3 and 4
Chart of Contributors
Contributors Area of Responsibility
K. Booklet on Conceptual Plan for Restoration of the Lower Clear Creek Floodway

Western Shasta Resource Conservation District

Lower Clear Creek Floodway Restoration Project Phases 3 & 4

APPENDIX

FIGURES



McB & Trush 1998

FIGURE 1. CLEAR CREEK PROJECT LOC ON

10/98

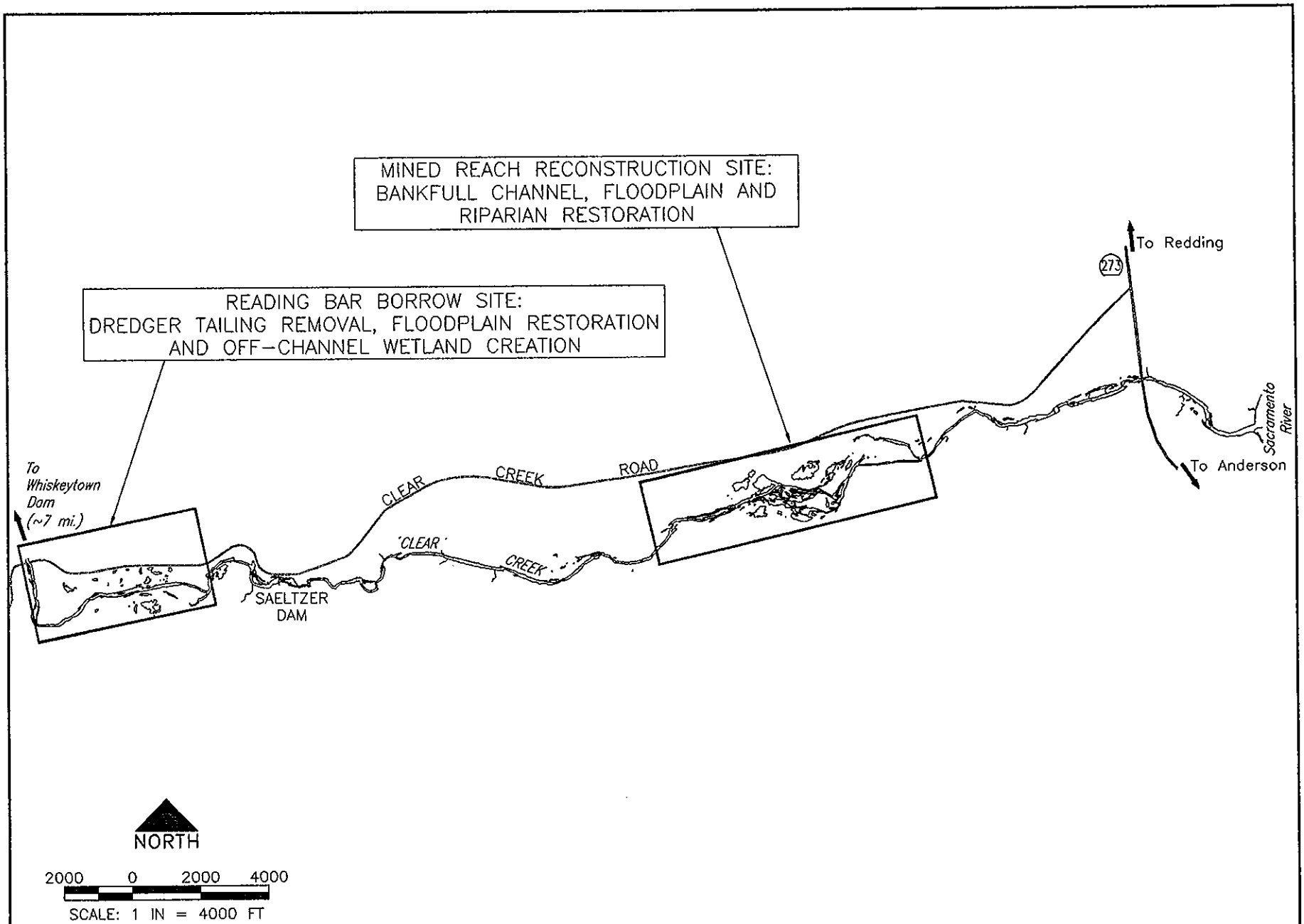


FIGURE 2. CLEAR CREEK
READING BAR AND MINED REACH LOCA' NS

McB & Trush 1998

10/98

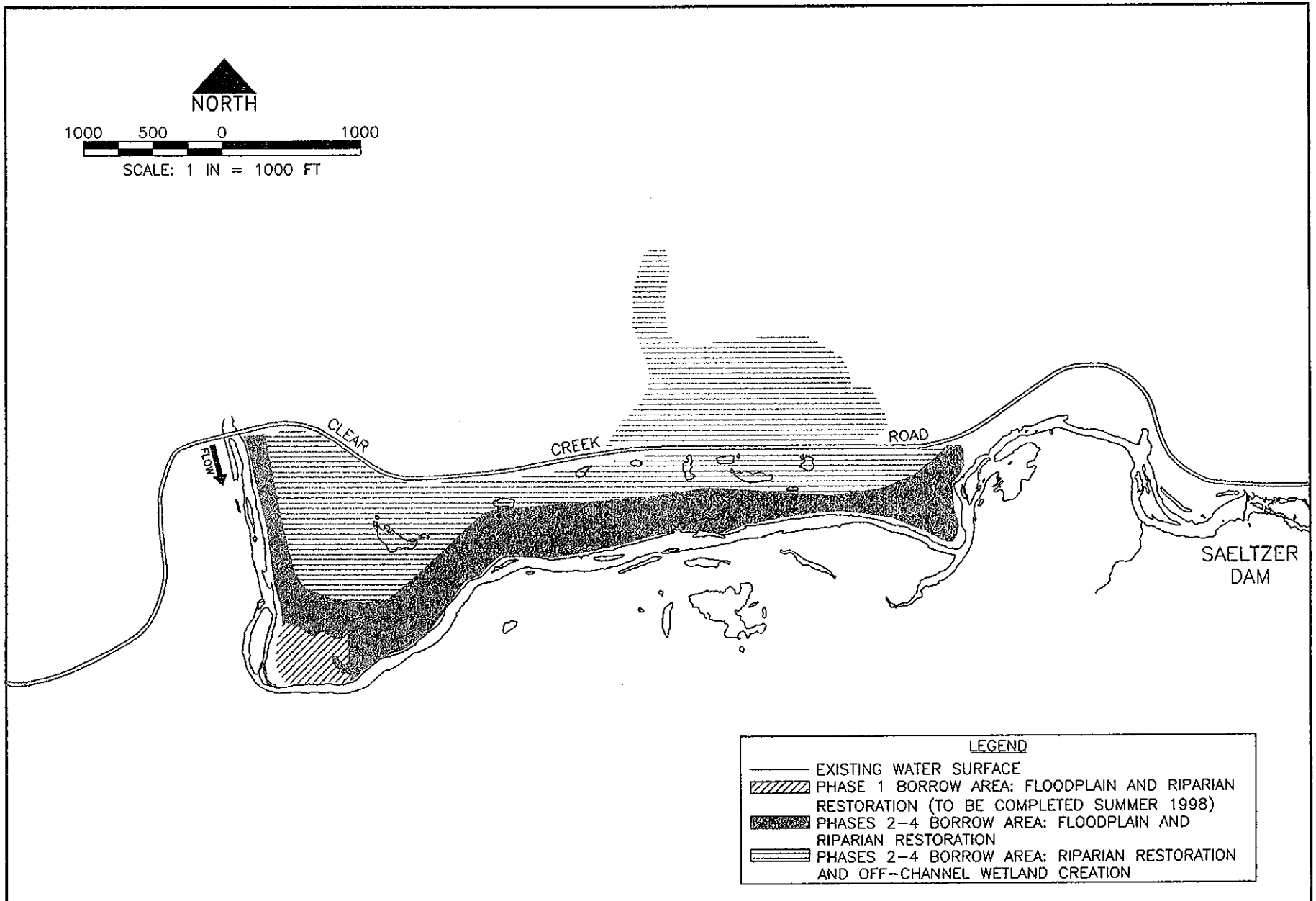


FIGURE 3. READING BAR PHASES 1–4: DREDGER TAILING REMOVAL, FLOODP' ' RESTORATION AND OFF–CHANNEL WETLAND CRF N

McB & Trush 1998

0/98

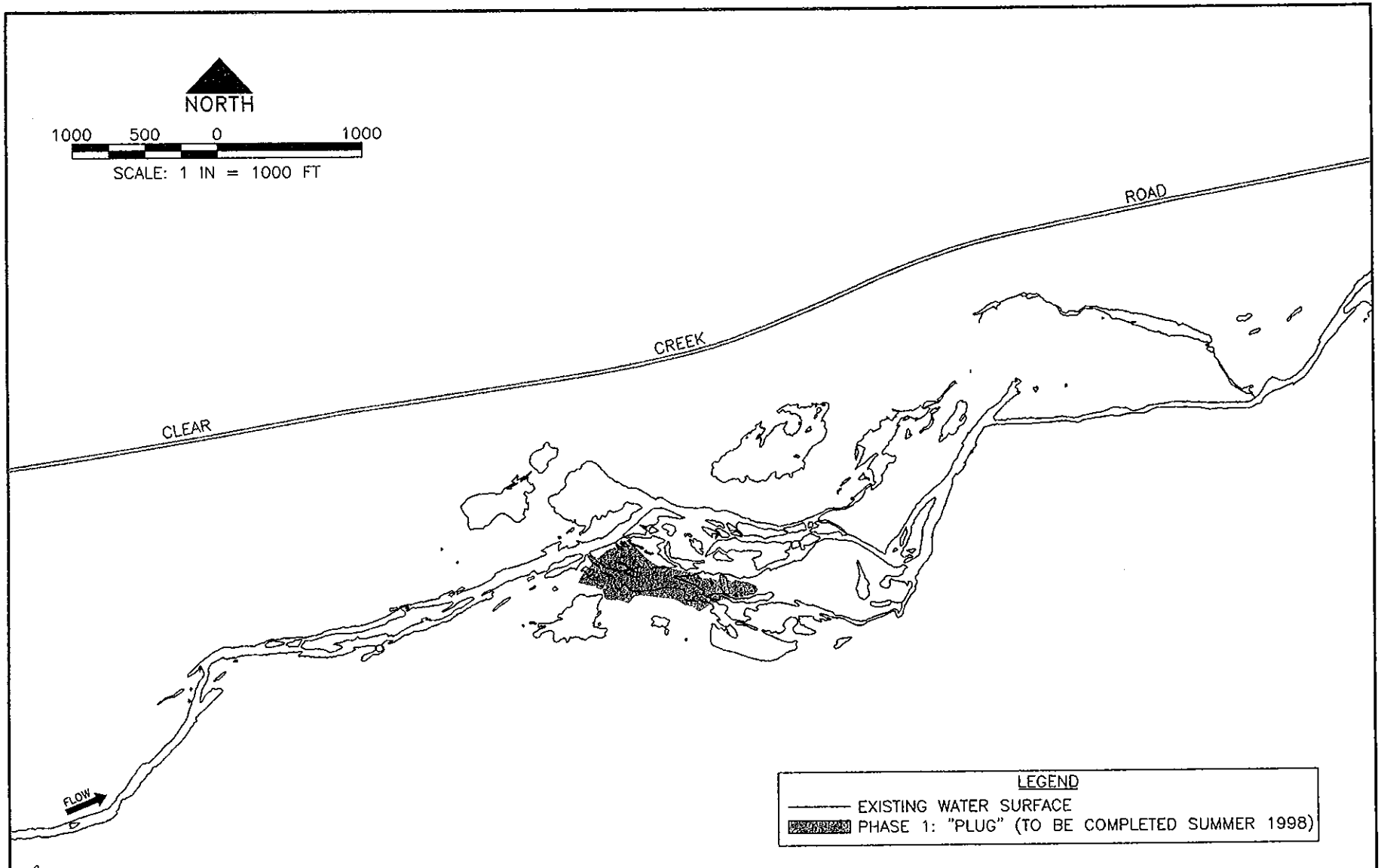


FIGURE 4. MINED REACH RECONSTRUCTION SITE
PHASE 1 (TO BE COMPLETED SUMMER 1998)

McB & Trush 1998

10/98

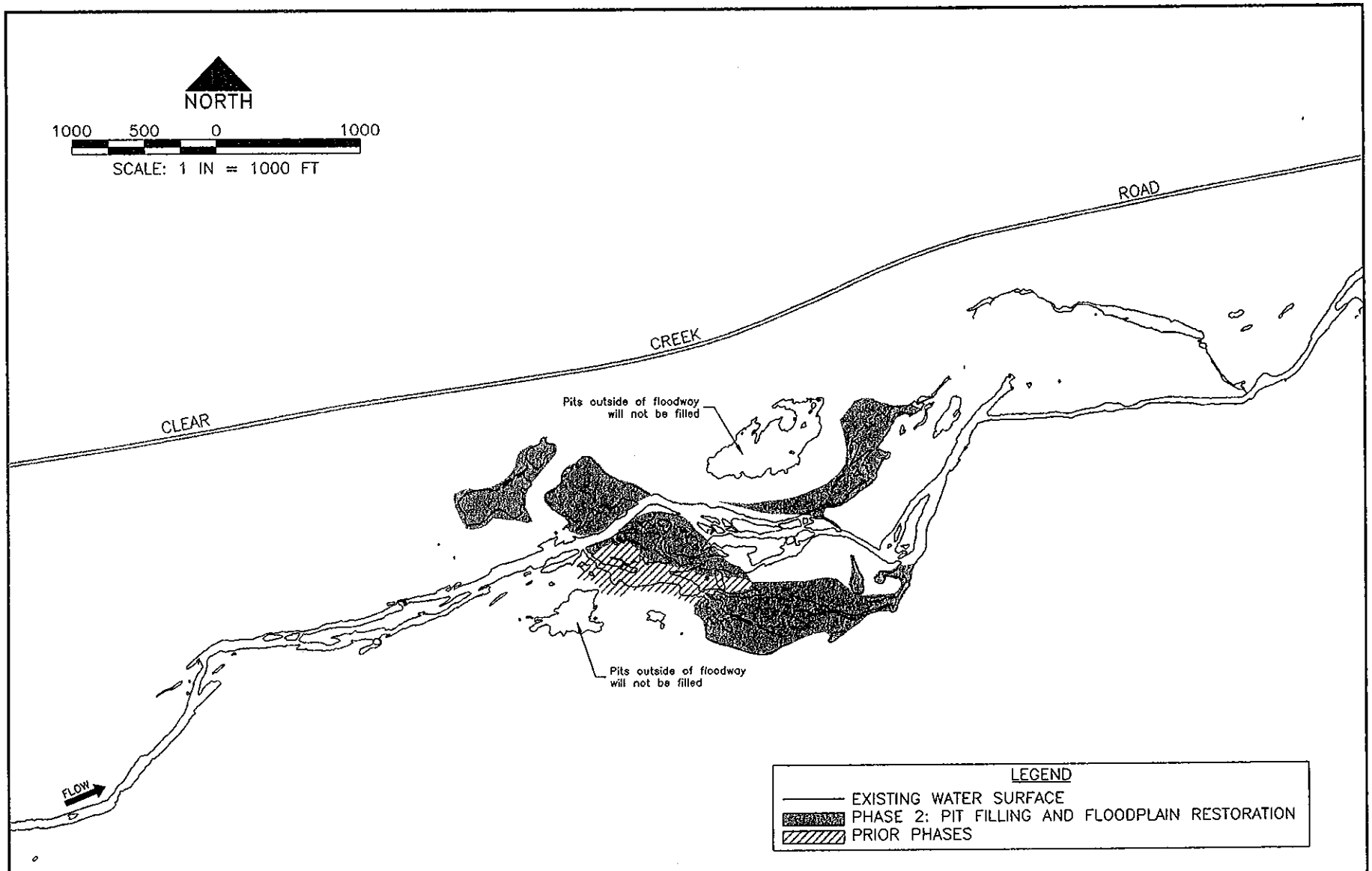


FIGURE 5. MINED REACH RECONSTRUCTION SITE
PHASE 2: PIT FILLING AND FLOODPLAIN RESTOF ON

McB & Trush 1998

0/98

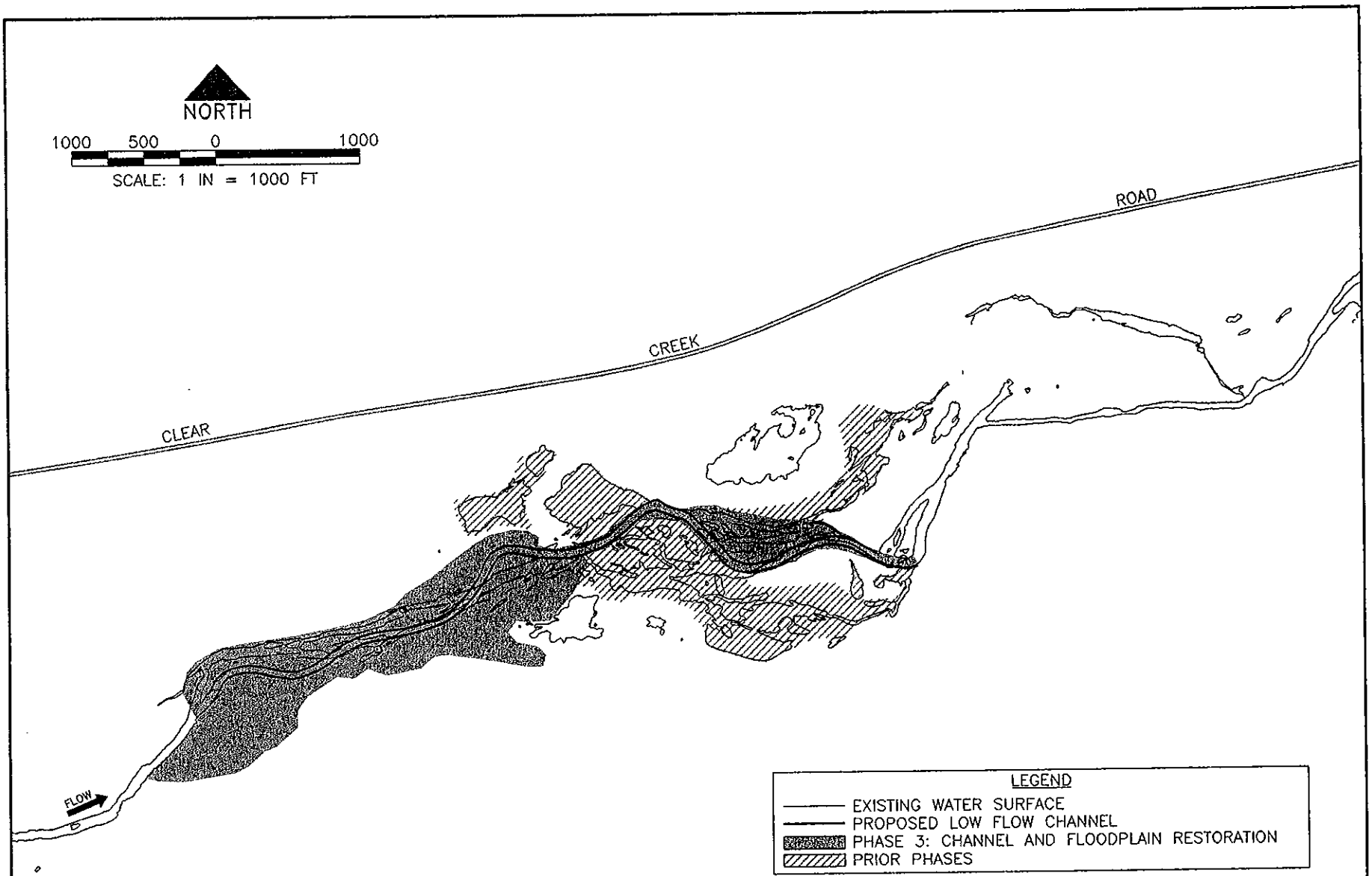


FIGURE 6. MINED REACH RECONSTRUCTION SITE
PHASE 3: CHANNEL AND FLOODPLAIN RESTOR ON

McB & Trush 1998

0/98

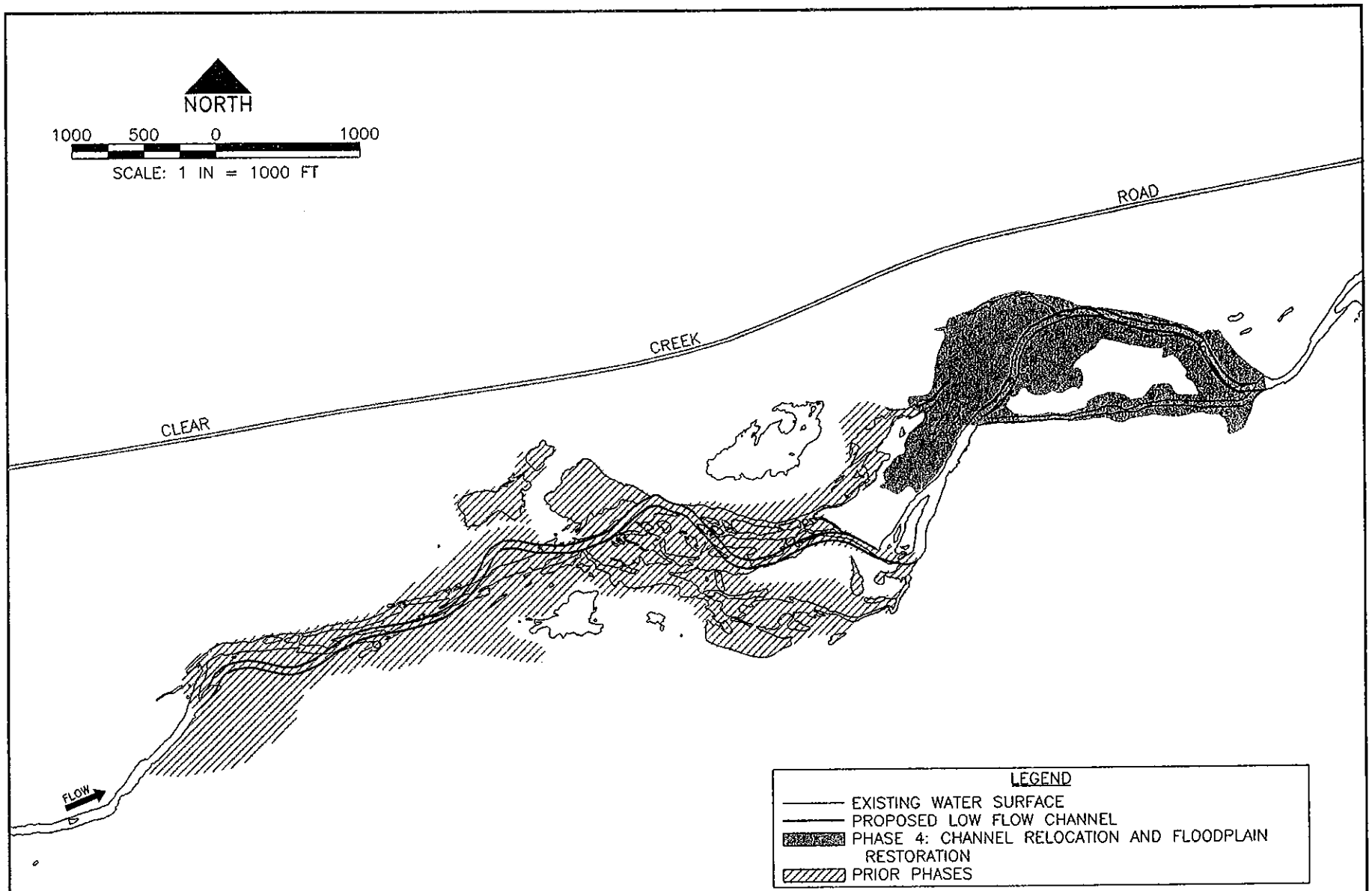


FIGURE 7. MINED REACH RECONSTRUCTION SITE
PHASE CHANNEL RELOCATION AND FLOODPLAIN RESTOR N

McB k Trush 1998

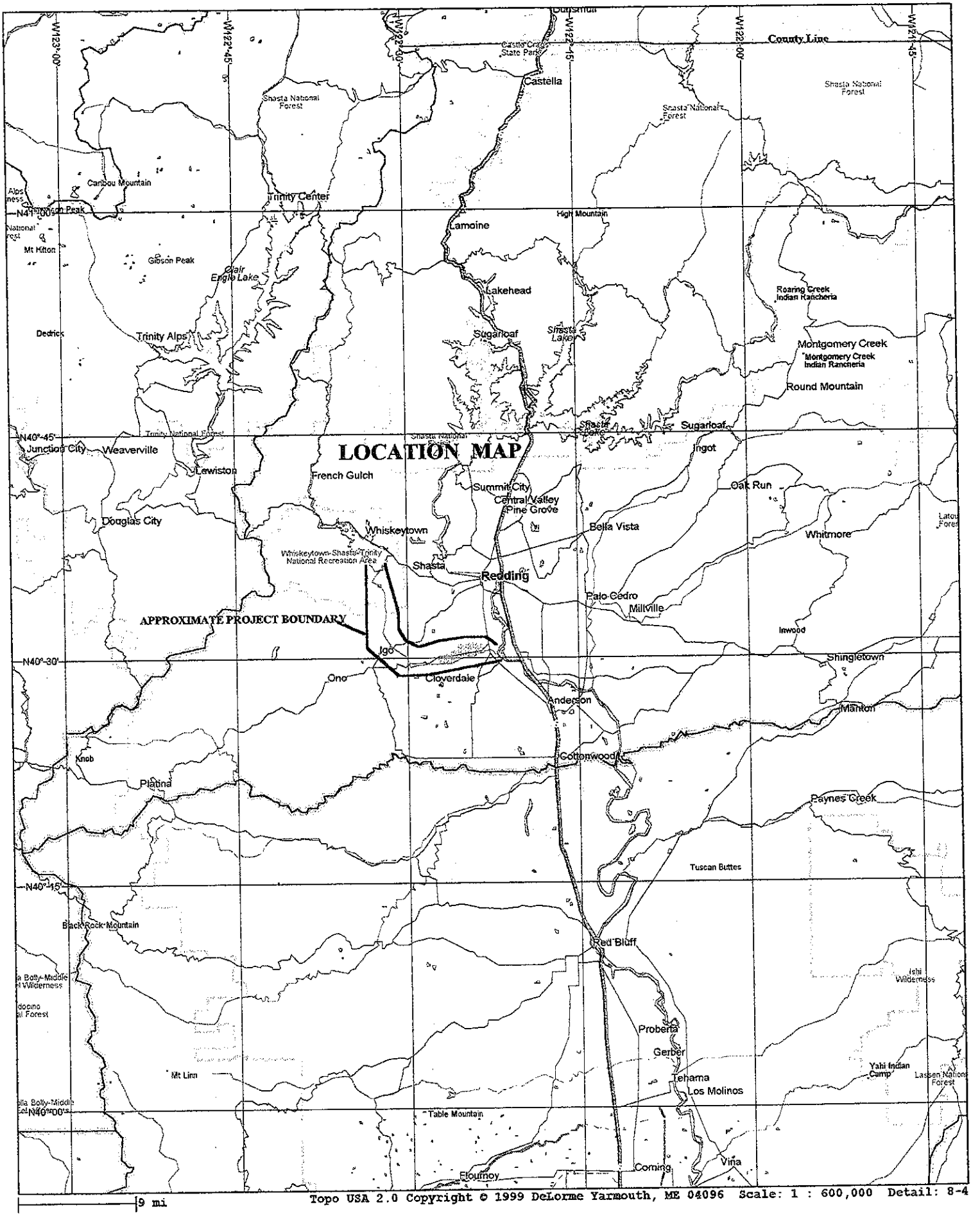
5/98

Western Shasta Resource Conservation District

Lower Clear Creek Floodway Restoration Project Phases 3 & 4

APPENDIX

QUAD MAPS


LOCATION MAP
APPROXIMATE PROJECT BOUNDARY
County Line
Castella
Castle Crags State Park
Shasta National Forest
Trinity Center
Caribou Mountain
Mt Hilton
Gibson Peak
Clair Engle Lake
Lamoine
High Mountain
Lakehead
Sugarloaf
Shasta Lake
Roaring Creek Indian Rancheria
Montgomery Creek
Montgomery Creek Indian Rancheria
Round Mountain
Ingot
Oak Run
Bella Vista
Whitmore
Dedrick
Trinity Alps
Junction City
Weaverville
Lewiston
French Gulch
Summit City
Central Valley
Pine Grove
Douglas City
Whiskeytown
Whiskeytown-Shasta-Trinity National Recreation Area
Shasta
Redding
Palo Cedro
Millville
Inwood
Igo
Ono
Cloverdale
Anderson
Shingletown
Manton
Cottonwood
Knob
Platina
Paynes Creek
Tuscan Buttes
Black Rock Mountain
Red Bluff
Mt Linn
Table Mountain
Proberta
Gerber
Tehama
Los Molinos
Yahi Indian Camp
Lassen National Forest
Ishi Wilderness
Corning
Vina
Flournoy
N41°00'
N40°45'
N40°30'
N40°15'
N40°00'
W123°00'
W122°45'
W122°30'
W122°15'
W122°00'
W121°45'
9 mi
Topo USA 2.0 Copyright © 1999 DeLorme Yarmouth, ME 04096 Scale: 1 : 600,000 Detail: 8-4

Western Shasta Resource Conservation District

Lower Clear Creek Floodway Restoration Project Phases 3 & 4

APPENDIX

LOCAL NOTIFICATION LETTERS

WESTERN SHASTA
RESOURCE CONSERVATION
DISTRICT

3294 Bechelli Lane, Redding, CA 96002-2005 - Phone: (530) 224-3250 Fax: (530) 224-3253

April 4, 2000

Mr. James Cook
Shasta County Planning Department
1855 Placer, Suite 103
Redding, CA 96001

RE: CALFED Grant Application

Dear Mr. Cook:

The Western Shasta Resource Conservation District (RCD) intends to submit a proposal to CALFED for Phases 3 and 4 of the Lower Clear Creek Channel Project. As part of the application process, we are obligated to notify the Planning Department of our intent to apply for this grant.

The purpose of Phase 3 & 4 is to continue and complete the rehabilitation of two reaches of Clear Creek by actively restoring a natural channel and floodplain morphology, and native riparian vegetation. Total costs for Phases 3 and Phase 4 are $3,041,189 and $2,360,364, respectively, which includes a CVPIA cost share of $500,000 pending CALFED approval of this proposal. This project is being implemented under the auspices of the lower Clear Creek Technical Work Group and Coordinated Resource Management Plan Group, which should avoid any potential third party impacts. All phases, including restoration of the borrow site, are or will soon be on public land. Funding this project will rehabilitate the two sites where alteration of the creek has been the most extensive, and when combined with the removal of Saeltzer Dam, will complete all large-scale channel rehabilitation needs on Clear Creek.

Phase 3 (FY 2000-2001) will focus on reconstructing and raising the bankfull channel above bedrock and hard-pan. Functional floodplains will again be created at both Reaches, and revegetated with native riparian species. Off-channel wetlands will be created and enhanced where appropriate at Reading Bar Ranch.

Phase 4 (FY 2000-2001) will restore flow into a section of historical channel that was diverted by instream aggregate activity. Excavated bars and floodplains will be restored and revegetated with native riparian vegetation, and functional floodplains and off-channel wetlands will continue to be created at Reading Bar Reach.

Public outreach is an important component of the proposal, and the RCD intends to cooperatively work with the public, willing private landowners, and government agencies to perform this conservation work in Clear Creek.

If you have any questions about the proposal, please contact our Projects Manager, Jeff Souza, at our district office. Thank you.

Sincerely,

Tom Engstrom, President
Board of Directors

cc: Shasta County Board of Supervisors

WESTERN SHASTA
RESOURCE CONSERVATION
DISTRICT

3294 Bechelli Lane, Redding, CA 96002-2005 - Phone: (530) 224-3250 Fax: (530) 224-3253

April 4, 2000

Shasta County Board of Supervisors
1815 Yuba Street
Redding, CA 96001

RE: Support for CALFED Grant Application

Dear Supervisors:

The Western Shasta Resource Conservation District (RCD) intends to submit a proposal to CALFED for Phases 3 and 4 of the Lower Clear Creek Channel Project and would appreciate a letter of continued support from the Board of Supervisors for these segments of the project. As part of the application process, we are obligated to notify the Board of Supervisors and County Planning, of our intent to apply for this grant.

The purpose of Phase 3 & 4 is to continue and complete the rehabilitation of two reaches of Clear Creek by actively restoring a natural channel and floodplain morphology, and native riparian vegetation. Total costs for Phases 3 and Phase 4 are $3,041,189 and $2,360,364, respectively, which includes a CVPIA cost share of $500,000 pending CALFED approval of this proposal. This project is being implemented under the auspices of the lower Clear Creek Technical Work Group and Coordinated Resource Management Plan Group, which should avoid any potential third party impacts. All phases, including restoration of the borrow site, are or will soon be on public land. Funding this project will rehabilitate the two sites where alteration of the creek has been the most extensive, and when combined with the removal of Saeltzer Dam, will complete all large-scale channel rehabilitation needs on Clear Creek.

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Phase 4 (FY 2000-2001) will restore flow into a section of historical channel that was diverted by instream aggregate activity. Excavated bars and floodplains will be restored and revegetated with native riparian vegetation, and functional floodplains and off-channel wetlands will continue to be created at Reading Bar Reach.

Public outreach is an important component of the proposal, and the RCD intends to cooperatively work with the public, willing private landowners, and government agencies to perform this conservation work in Clear Creek.

If you would like a personal presentation about the Clear Creek Project, I would be happy to schedule one during a board meeting. If you have any questions about the proposal, please contact our Projects Manager, Jeff Souza, at our district office. Thank you.

Sincerely,

Tom Engstrom

Tom Engstrom, President
Board of Directors

cc: James Cook, Director, Shasta County Planning Department

Western Shasta Resource Conservation District

Lower Clear Creek Floodway Restoration Project Phases 3 & 4

APPENDIX

COVER, TABLE 1 AND PLATES FROM ECOLOGICAL MONITORING PLAN

ECOLOGICAL MONITORING PLAN
FOR
LOWER CLEAR CREEK
FLOODWAY REHABILITATION PROJECT

Presented To:
CALFED Bay Delta Program
1416 Ninth Street, Suite 1155
Sacramento, California 95814

Contract Number: 114209J022

Prepared By:

Bureau of Reclamation
Northern California Area Office
16349 Shasta Dam Blvd.
Shasta Lake City, CA 96019

Western Shasta
Resource Conservation District
3294 Bechelli Lane
Redding, CA 96002

January 2000

Table 1. **Ecological objectives, hypotheses, and study parameters for Lower Clear Creek Floodplain Rehabilitation Project.**

I) Biological/Ecological Project Objectives For Fishery Resources.				
OBJECTIVE/HYPOTHESIS	MONITORING PARAMETER (S) AND DATA COLLECTION APPROACH	DATA EVALUATION APPROACH	MONITORING AGENT, COMMENTS, STUDY PRIORITY	FUNDING
Objective F1: Improve salmonid rearing and spawning habitat within the project reach. Hypothesis F1. Implementation of channel restoration project will increase the quality and quantity of salmonid (chinook salmon and steelhead trout) habitat within the project study area.	Map meso-habitats and conduct habitat transect measurements for meso-habitats throughout the project study area. Monitor meso-habitat use by rearing juvenile and spawning adult salmonids using direct observation methods, bank observations and snorkel divers, within project site.	Use established IFIM-PHABSIM methodologies to describe habitat availabilities for rearing and spawning salmonids prior to and after habitat restoration. Compare total habitat area and weighted usable area (WUA) for each life stage before and after channel restoration. Compare habitat use in meso-habitats prior to and after habitat restoration.	USFWS Spawning use has been monitored over a three year period and some baseline data is available. High Priority.	CVPIA 3406(b)(12).
ObjectiveF2: Reduce juvenile salmonid stranding mortalities Hypothesis F2. Implementation of channel restoration project will decrease stranding induced mortality of adult and juvenile salmonids within the project reach.	Survey stream channel and floodplain locations using direct observation, electrofishing and seining techniques throughout project study area immediately following flood events to determine extent of juvenile stranding.	Compare stranding survey data before and after channel and floodplain restoration efforts are complete.	USFWS Stranding of juvenile salmonids is recognized as a serious problem by resource agencies. High Priority.	CVPIA 3406(b)(12)
ObjectiveF3: Improve adult passage conditions through the project reach upstream. Hypothesis F3. Implementation of channel restoration project will improve passage conditions for adult salmon and steelhead trout through the project reach upstream.	Visually assess adult salmon passage during upstream migration through the project over critical riffles to determine if current conditions inhibit adult passage upstream. If passage problems occur, map problem areas and establish transects across critical riffles to quantify hydraulic parameters, water depth and velocity, during the migration period.	If passage problems are identified, describe existing passage conditions and compare hydraulic conditions over critical riffles prior to and after habitat restoration.	USFWS Implementation of Phase 1 during 1998 corrected the most serious adult passage concern. Other areas within the project site are not considered to be significant passage problems. Moderate Priority.	CVPIA 3406(b)(12)

Table 1. **Ecological objectives, hypotheses, and study parameters for Lower Clear Creek Floodplain Rehabilitation Project. Continued.**

II) Biological/Ecological Project Objectives for Geomorphology.				
OBJECTIVE/HYPOTHESIS	MONITORING PARAMETER (S) AND DATA COLLECTION APPROACH	DATA EVALUATION APPROACH	MONITORING AGENT, COMMENTS, STUDY PRIORITY	FUNDING
Objective G1: Recreate a properly sized alluvial channel morphology. Hypothesis G1: Coarse sediment will be mobilized by design bankfull flow (the bed moves)	The monitoring parameter will be percentage of tracer rocks mobilized for different alluvial features (point bars, riffles, pool tails, etc). Tracer rocks will be installed on at least two point bars and two riffles within the project reach, and monitored for mobilization and distance after each discrete high flow event sufficient to cause mobilization.	Tracer rocks will be evaluated by: 1) whether they moved, and 2) how far they moved. The former will allow us to evaluate whether the bed is mobilized by design bankfull discharge, and the latter will provide information on particle travel distance as a function of flow and duration of flow.	WSRCD Will allow designers to improve bankfull channel design for later projects. Moderate priority	Currently CVPIA, CALFED is anticipated future source.
Objective G2: Recreate a properly sized alluvial channel morphology. Hypothesis G2: The bankfull channel will migrate or avulse during flows approaching bankfull discharge and larger (the channel migrates)	The monitoring parameter will be bankfull channel location within the valley-wide cross section, and planform location over time. Cross sections will be installed throughout two alternate bar sequences (targeting meander bends). Post-construction aerial photographs will be rubber-sheeted and channel location digitized and overlain on previous channel locations.	Migration or avulsion of the bankfull channel will be evaluated by comparing channel response (feet moved, rate of movement) with the magnitude and duration of flow that caused the channel to migrate.	WSRCD Much of this will be collateral information gathered with other geomorphic monitoring activities. Moderate priority	Currently CVPIA, CALFED is anticipated future source
Objective G3: Recreate a properly sized alluvial channel morphology. Hypothesis G3: Flows exceeding design bankfull discharge will begin inundating constructed floodplains.	The monitoring parameter will be water surface elevation within the bankfull channel, and flow discharge for that water surface elevation. At one site assessable during high flows at the project site and borrow site water surface elevations will be predicted during the design phases, and elevations will be measured during high flow events after construction.	Measured water surface elevations will be compared to constructed floodplain elevations, and hydraulic parameters will also be collected to refine hydraulic model.	WSRCD Will allow designers to improve bankfull channel design for later projects. Moderate priority	Anticipated CALFED Grant

Table 1. **Ecological objectives, hypotheses, and study parameters for Lower Clear Creek Floodplain Rehabilitation Project. Continued.**

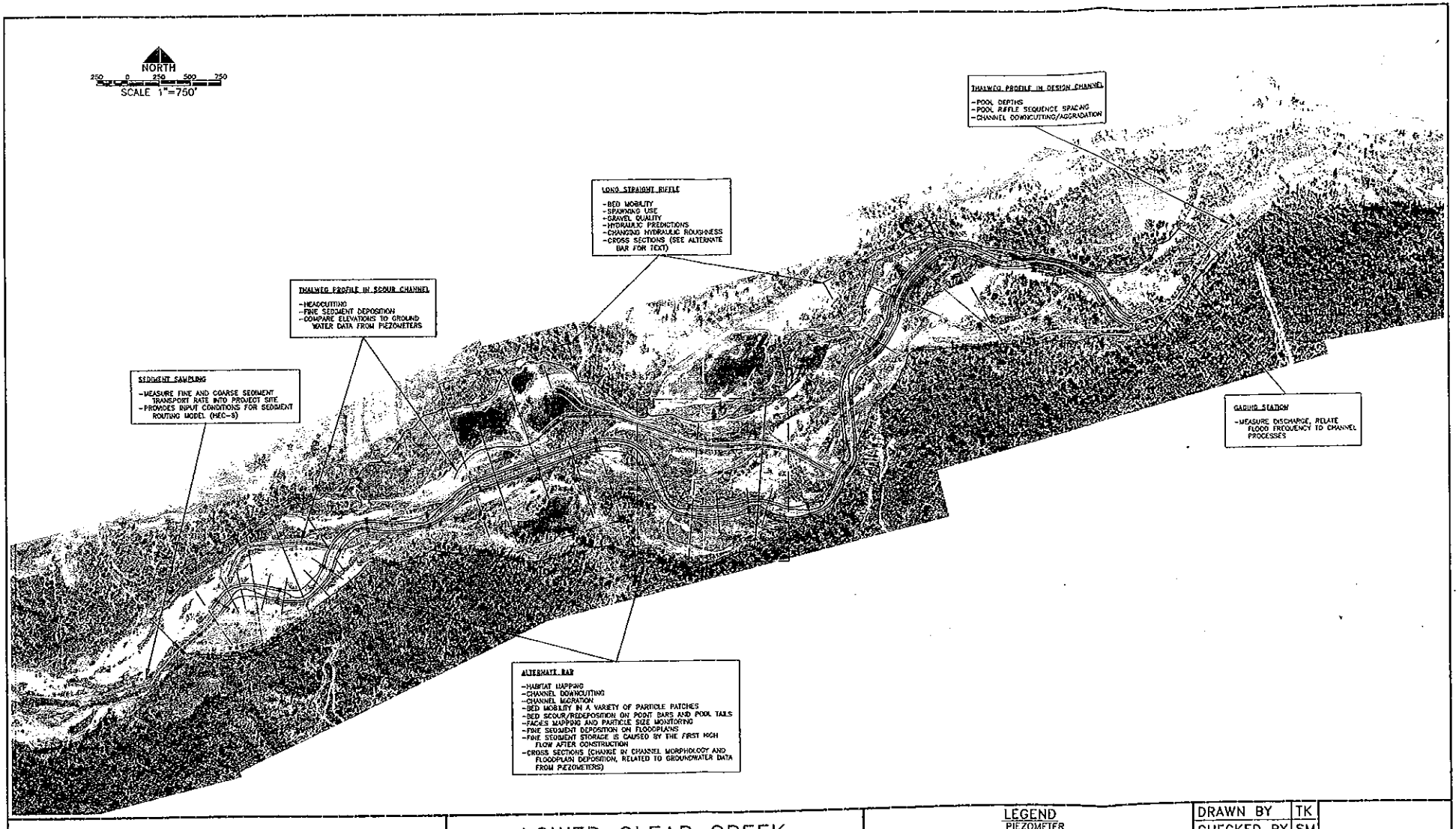
II) Biological/Ecological Project Objectives for Geomorphology.				
OBJECTIVE/HYPOTHESIS	MONITORING PARAMETER (S) AND DATA COLLECTION APPROACH	DATA EVALUATION APPROACH	MONITORING AGENT, COMMENTS, STUDY PRIORITY	FUNDING
Objective G4: Recreate a properly sized alluvial channel morphology. Hypothesis G4: Flows exceeding design bankfull discharge will begin depositing fine sediments (sand and silt) on constructed floodplains	The monitoring parameter will be water surface elevation within the bankfull channel, flow discharge for that water surface elevation, and fine sediment deposition on floodplains At one site accessible during high flows at the Borrow Site and Project Site water surface elevations will be measured during high flow events after construction, and a depth flow threshold for fine sediment deposition will be sought.	Water surface elevations will be compared to constructed floodplain elevations (to get water depths); then, fine sediment deposition will be measured by cross sections and scour nails, and sediment composition will be documented by bulk substrate sampling. The source of the high flow (tributary derived vs dam spill) will be considered and when feasible (safe), depth integrated suspended sediment samples will be collected and analyzed for particle size distribution.	WSRCD Fine sediment deposition on floodplains is critical for natural riparian regeneration. There may also be significant depositional differences between tributary generated flood events and dam generated flood events. Moderate priority	Anticipated CALFED Grant
Objective G5: Raise channel above bedrock hardpan, increasing alluvial storage within the bankfull channel. Hypothesis G5: Subsequent high flows and reductions in sediment supply upstream available upstream of the project will cause bankfull channel to begin incision.	Longitudinal thalweg surveys. Bedrock contacts along the proposed channel centerline will be surveyed as part of the design phase, as-built channel thalweg will be surveyed to document elevation above bedrock contacts, and subsequent surveys will track whether (and how much) incision occurs after specific high flow events that exceed bed mobility thresholds	Compare longitudinal profiles and cross sections prior to and after high flow events to determine patterns of aggredation and deposition.	WSRCD Without removing Saeltzer Dam and/or manually adding coarse sediment, reconstructed channel not controlled by bedrock will again begin to incise during high flow events large enough to transport coarse bed material. This monitoring will document where incision occurs and how much. Moderate priority	Anticipated CALFED Grant

Table 1. **Ecological objectives, hypotheses, and study parameters for Lower Clear Creek Floodplain Restoration Project, Continued.**

II) Biological/Ecological Project Objectives for Geomorphology.				
OBJECTIVE/HYPOTHESIS	MONITORING PARAMETER (S) AND DATA COLLECTION APPROACH	DATA EVALUATION APPROACH	MONITORING AGENT, COMMENTS, STUDY PRIORITY	FUNDING
Objective G6: Recreate a properly sized alluvial channel morphology with adequate coarse sediment supply. Hypothesis G6: As the bankfull channel migrates, coarse and fine sediments will deposit on the inside of meander bend, creating a new functional floodplain.	The monitoring parameter will be bankfull channel width, bankfull channel depth, and perhaps estimates of bankfull channel boundary shear stress. These parameters will be obtained from cross sections installed throughout two alternate bar sequences (targeting meander bends.)	Evolution of cross section shape, dimensions, and perhaps boundary shear stress will be documented before and after discrete high flow events. Channel adjustment will also be considered in light of changing sediment loads, high flow magnitude, and high flow duration.	WSRCD Much of this will be collateral information gathered with other geomorphic monitoring activities. Channel dimension evolution will be used to improve future channel designs. Moderate priority.	Currently CVPIA, CALFED is anticipated future source.

Table 1. **Ecological objectives, hypotheses, and study parameters for Lower Clear Creek Floodplain Restoration Project, Continued.**

III) Biological/Ecological Project Objectives for Riparian Communities.				
OBJECTIVE/HYPOTHESIS	MONITORING PARAMETER (S) AND DATA COLLECTION APPROACH	DATA EVALUATION APPROACH	MONITORING AGENT, COMMENTS, STUDY PRIORITY	FUNDING
Objective R1: Restore native riparian vegetation on newly created floodplain surfaces. Hypothesis R1. The revegetation phase of channel restoration activities will increase the quantity and diversity of native riparian vegetation on reconstructed floodplain surfaces.	Map and describe the composition of riparian vegetation within the project study area prior to and after stream channel and floodplain restoration activities. Continue to monitor project site for a minimum five year period following the completion of restoration activities.	Planform Mapping: Construct maps of riparian vegetation coverage and compare riparian vegetation communities before and after restoration efforts. Cross Section: Establish cross sections and sample plots to monitor planting success, natural recruitment, species composition, distribution and density. Duplicate data collection efforts (cross sections, plots, mapping) at control sites located outside of project study area, monitor over time and compare results.	WSRCD Moderate Priority	CALFED funding is anticipated
Objective R2: Create favorable physical conditions for regeneration of native riparian species on restored floodplains. Hypothesis R2. Implementation of channel and floodplain restoration activities, combined with favorable hydrologic conditions during seed dispersal period, will increase natural regeneration of native riparian species on constructed floodplain surfaces.	Monitor natural recruitment of riparian species on newly created floodplain surfaces for a minimum of five years following completion of restoration activities.	Establish cross sections and sample plots on newly restored floodplains. Monitor natural recruitment of riparian vegetation. Compare recruitment, density, distribution and species composition to that observed at control sites.	WSRCD Moderate Priority	CALFED funding is anticipated



McBain & Trush

GMA GRAHAM MATTHEWS & ASSOCIATES

North State Resources

LOWER CLEAR CREEK
GEOMORPHIC MONITORING PLAN
PROPOSED LOCATIONS & DESIGN

LEGEND
- PIEZOMETER
- GAGING STATION
- SCOUR CHANNEL
- BANKFULL CHANNEL
- LOW FLOW CHANNEL
- CROSS SECTION
- CONSTRUCTION LIMIT

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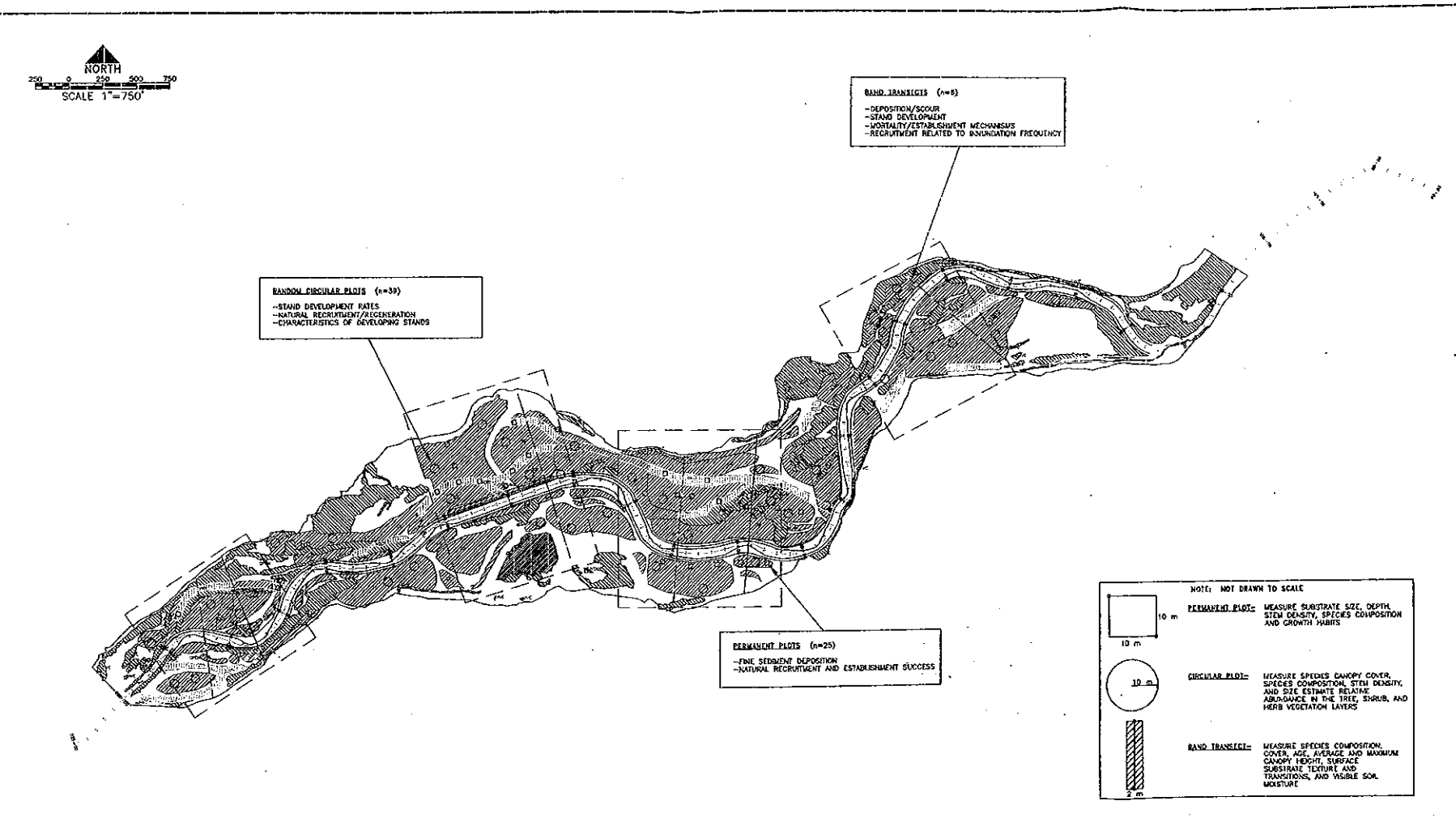
REVISION	A

PLATE 1



McBain &Trush

GMA GRAHAM MATTHEWS & ASSOCIATES

North State Resources

LOWER CLEAR CREEK
RIPARIAN MONITORING PLAN
PROPOSED LOCATIONS & DESIGN

LEGEND

PIEZOMETER
GAGING STATION
REBAR PIN
SCOUR CHANNEL
BANKFULL CHANNEL
LOW FLOW CHANNEL
BAND TRANSECT
CONSTRUCTION LIMIT

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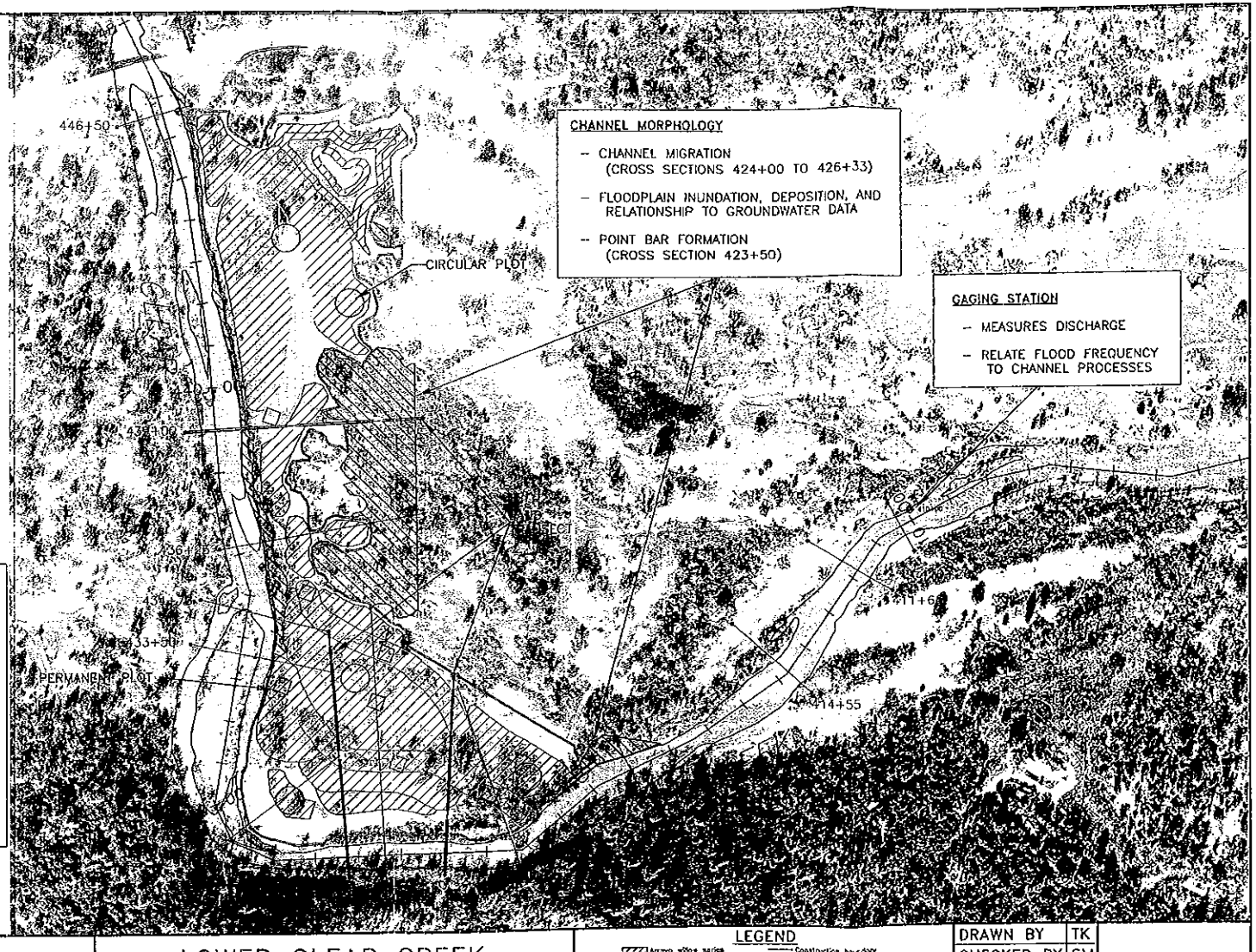
REVISION	A

PLATE 2



McBain &Trush

GMA GRAHAM MATTHEWS & ASSOCIATES

North State Resources

LOWER CLEAR CREEK
GEOMORPHIC & RIPARIAN MONITORING PLAN
PROPOSED LOCATIONS & DESIGN

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PLATE 3

Western Shasta Resource Conservation District

Lower Clear Creek Floodway Restoration Project Phases 3 & 4

APPENDIX

PERMISSIONS

TEMPORARY ENTRY PERMIT

Permission is hereby given to the Western Shasta Resource Conservation District and its officers, employees, agents, and persons under contract therewith, hereafter referred to as the Sponsor, by the Permittor named below to enter, with all necessary equipment, in the County of Shasta, State of California, described as follows:

Section 36 T, 31 N,R 6 W, MDBM. Mining Claim No. _____ - _____

Assessors Parcel No. 41-350-51 Claimant _____

FOR THE PURPOSE OF:

1. Removal of dredge tailings.
2. Placement and removal of temporary haul road.
3. Exotic vegetation control.
4. Revegetation of floodplain
5. Construction of new floodplain surface.
6. Monitering / Maintenance.

and for such other purposes as may be incidental thereto subject to the following provisions:

1. Reasonable precautions.

2. Permittor assumes no liability for loss or damage to property or injuries to or deaths of agents, contractors, or employees of Sponsor by reason of the exercise of privileges conferred herein.

3. Nothing in this permit shall preclude Permittor from filing a claim, or claims, for any loss or expense which Permittor or his tenant may suffer caused by arising out of the exercise by the Sponsor of the rights herein granted.

4. Sponsor agrees to indemnify and hold harmless Permittor from any damage caused by Sponsor's authorized use of said property. Sponsor agrees also to either indemnify Permittor for any damage or destruction to its roads or fences, or other property, occurring by reason of the exercise of rights granted herein, or to replace or restore said property.

5. This permit shall expire on 12/31/02.

6. This permit is granted subject to the provisions set forth above.

Permittor HCCP - Gene Clark

Signature Gene Clark Date 10-26-99

Address P.O. Box 107

State, Zip Igo, CA 96047 Tele. No. 241-8187

Permit accepted: Western Shasta Resource Conservation District.

By Phil Schaefer, Title Pres. W.S.R.C.D.

Western Shasta Resource Conservation District

Lower Clear Creek Floodway Restoration Project Phases 3 & 4

APPENDIX

BACKUP CALCULATIONS TO BUDGET

PHASE 3 COST ESTIMATE WORKSHEET

ASSUMPTIONS/QUALIFIERS:
1) Flat floodplain, trapezoidal channel with average bankfull depth=6 ft
2) some areas we plan on not disturbing are included in the volume calcs, but contribute little to total volumes

COST ASSUMPTIONS:
Purchase materials from local operator:
Materials cost: $7.25 /cu yd (Based on past bids, sorted and washed spawning gravel)
Off-site transportation cost: $7.75 /cu yd (Based on past bids, sorted and washed spawning gravel)
Obtain from BLM borrow sites:
On-site transportation cost: $3.00 /cu yd
Off-site transportation cost: $7.96 /cu yd (NRCS Engineered Estimate)

CONSTRUCTION

Clearing and grubbing	ACRES	COST/ACRE				
	20	$1,450				$29,000
Removal of water, pollution control, stream crossings)						$250,000
Fish salvage						$10,000
Bank Protection, rock weirs						$538,000
Earthmoving						
Phase 3, subsite 1, south side point bar			TRANS	MATERIAL	TOTAL	
Volume of On-Site Fill Material (cut):	66,780 cu yds		$200,340	$0	$200,340	
Volume of Fill needed (gross fill):	49,425 cu yds					
Volume of Imported Fill needed (net fill):	-17,355 cu yds		-$138,146	$0	-$138,146	
Phase 3, subsite 2, middle channel fill						
Volume of On-Site Fill Material (cut):	56,755 cu yds		$170,265	$0	$170,265	
Volume of Fill needed (gross fill):	16,266 cu yds					
Volume of Imported Fill needed (net fill):	-40,489 cu yds		-$322,292	$0	-$322,292	
Phase 3, subsite 3, downstream end fill						
Volume of On-Site Fill Material (cut):	8,560 cu yds		$25,680	$0	$25,680	
Volume of Fill needed (gross fill):	176,360 cu yds					
Volume of Imported Fill needed (net fill):	167,800 cu yds		$1,335,688	$0	$1,335,688	
Volume of Channel Gravel Addition	20,400 cu yds		$183,600	$122,400	$306,000	
Total On-Site Fill:	132,095 cu yds					
Total Imported Fill:	109,956 cu yds					
Earthmoving subtotal:	242,051 cu yds		$1,455,135	$122,400	$1,577,535	
Earthmoving Volume Contingency		18%	$1,717,059	$144,432	$1,861,491	$1,861,491
Vegetative Cover	ACRES	COST/ACRE				
	10	$1,300				$13,000
CONSTRUCTION SUBTOTAL:						$2,701,491
Mobilization	2.5% of total construction costs					$67,537.28

CONSTRUCTION TOTAL: $2,769,028

NON-CONSTRUCTION

Design Surveys

	Total Cost
licensed surveyor	$50,000
Design survey subtotal	**$50,000**

Revegetation

	ACRES	COST/ACRE	
Riparian revegetation (RCD)	47	$6,000	$282,000
Riparian revegetation (Contractor)	47	$1,500	$70,500
As-built survey of revegetation			Total Cost $15,000
Riparian revegetation subtotal			**$367,500**

Monitoring

	ANNUAL	X 3 years	Total Cost
Riparian monitoring	$50,000	$150,000	$150,000
Avian monitoring	$25,000	$75,000	$75,000
Geomorphic monitoring	$60,000	$180,000	$180,000
Monitoring subtotal			**$405,000**

Education

	Total Cost
Shasta County Office of Education	$161,600
WSRCD	$189,528
Education subtotal	**$351,128**

Field Staking

	Total Cost
licensed surveyor	$40,000
Field Staking subtotal	**$40,000**

Construction Supervision

	Total Cost
Western Shasta RCD personnel	$50,000
Construction Supervision subtotal	**$50,000**

Project Management

	Total Cost
Western Shasta RCD personnel	$120,000
Project Management subtotal	**$120,000**

NON-CONSTRUCTION TOTAL:	$1,383,628
CONSTRUCTION & NON-CONSTRUCTION TOTAL:	$4,152,656
25% Contingency (on Construction and Revegetation contract)	$762,757
GRAND SUBTOTAL:	**$4,915,413**
15% INDIRECT COSTS:	$737,312
GRAND TOTAL:	**$5,652,725**

PHASE 4 COST ESTIMATE WORKSHEET

ASSUMPTIONS/QUALIFIERS:

1) Flat floodplain, trapezoidal channel with average bankfull depth=6 ft
2) some areas we plan on not disturbing are included in the volume calcs, but contribute little to total volumes
3) Does not yet include reveg, equipment time, construction supervision, etc

COST ASSUMPTIONS:

<u>Purchase materials from local operator:</u>	
Materials cost:	$7.25 /cu yd (Based on Hoy and Son's bid, sorted and washed spawning gravel)
Materials cost:	$5.00 /cu yd (Rough estimate that needs to be re-evaluated, full range of particle sizes, no sorting or washing)
Off-site transportation cost:	$6.11 /cu yd Based on Hoy and Son spawning gravel introduction bid
On-site transportation cost:	$3.00 /cu yd (Rough estimate that needs to be re-evaluated)
Off-site transportation cost:	$6.40 /cu yd (NRCS Engimeered Estimate)
Materials cost:	$6.00 /cu yd (NRCS Engimeered Estimate; full range of particle sizes, no sorting or washing)
Materials cost:	$11.08 /cu yd (NRCS Engimeered Estimate; sorted and washed spawning gravel)
Materials cost:	$15.00/cu yd (RCD Estimate; sorted, washed spawning gravel placed in channel
<u>Obtain from BLM borrow sites:</u>	
Materials cost:	$0.00 /cu yd (full range of particle sizes, no sorting or washing)
Off-site transportation cost:	$6.25 /cu yd Based on Sunrise Excavation Phase 1 bid
On-site transportation cost:	$3.00 /cu yd (Rough estimate that needs to be re-evaluated)
Off-site transportation cost:	$7.96 /cu yd (NRCS Engineered Estimate)

CONSTRUCTION

Clearing and grubbing	ACRES 10	COST/ACRE $1,450			$14,500				$14,500
Removal of water, pollution control, stream crossings)					$125,000				$125,000
Fish salvage					$7,000				$7,000
Bank Protection, rock weirs					$310,000				$310,000
Earthmoving			**COST WITH BLM BORROW SITES**				**COST WITH NO BLM BORROW SITES (unsorted gravel)**		
*Phase 4 (no subsites done)			TRANS	MATERIAL	TOTAL		TRANS	MATERIAL	TOTAL
Volume of On-Site Fill Material (cut):	41,380 cu yds		$124,140	$0	$124,140		$124,140	$0	$124,140
Volume of Fill needed (gross fill):	156,323 cu yds		$977,019	$0	$977,019		$955,134	$781,615	$1,736,749
Volume of Imported Fill needed (net fill):	114,943 cu yds		$914,946	$0	$914,946		$735,635	$689,658	$1,425,293
Total Channel Gravel Addition	5,500 cu yds	X $15.00/yd		$82,500	$82,500			$82,500	$82,500
Total On-Site Fill:	41,380 cu yds								
Total Imported Fill:	114,943 cu yds								
Earthmoving subtotal:	156,323 cu yds		$1,101,159	$0	$1,101,159		$1,079,274	$781,615	$1,860,889
NRCS Engineered Estimate			$1,039,086	$82,500	$1,121,586		$1,690,769	$1,553,773	$3,244,542
Earthmoving Volume Contingency		18%	$1,226,122	$97,350	$1,323,472	$0	$1,995,107	$1,833,452	$3,828,559
Vegetative Cover	ACRES 12	COST/ACRE $1,200			$14,400				$14,400
CONSTRUCTION SUBTOTAL: (Assuming BLM Borrow Sites)									$1,794,372
CONSTRUCTION SUBTOTAL: (Assuming No BLM Borrow Sites)									$4,299,459
Mobilization	5% of total construction costs				$89,718.59				$214,972.96
CONSTRUCTION TOTAL: (Assuming BLM Borrow Sites)									$1,884,090
CONSTRUCTION TOTAL: (Assuming No BLM Borrow Sites)									$4,514,432

NON-CONSTRUCTION

Design Survey

	Total Cost
licensed surveyor	$30,000
Design survey subtotal	**$30,000**

Field Staking

	Total Cost
licensed surveyor	$20,000
Field Staking subtotal	**$20,000**

Revegetation

	ACRES	COST/ACRE	
Riparian revegetation (contractor)	18	$6,000	$108,000
Riparian revegetation (rcd)	18	$1,500	$27,000

As-built survey of revegetation — Total Cost $20,000
BLM or WSRCD or consultant
This also serves as contract compliance and initial conditions for monitoring

Riparian revegetation subtotal **$155,000**

Monitoring

	ANNUAL	X 2 years	Total Cost
Riparian monitoring	$50,000	$100,000	$100,000
Avian monitoring	$25,000	$50,000	$50,000
Geomorphic monitoring	$60,000	$120,000	$120,000
Monitoring subtotal			**$270,000**

Education

	Total Cost
Shasta County Office of Education	$67,300
WSRCD	$30,000
Education subtotal	**$97,300**

Construction Supervision

Western Shasta RCD personnel — Total Cost $25,000

Construction Supervision subtotal **$25,000**

Project Management

Western Shasta RCD personnel — Total Cost $120,000

Project Management subtotal	$120,000
NON-CONSTRUCTION TOTAL:	$717,300
CONSTRUCTION & NON-CONSTRUCTION TOTAL: (Assuming BLM Borrow Sites)	$2,601,390
CONSTRUCTION & NON-CONSTRUCTION TOTAL: (Assuming No BLM Borrow Sites)	$5,231,732
25% Contingency (on Construction and revegetation contract)	$498,022.60
25% Contingency (assuming no BLM borrow sites)	$1,307,933.05
GRAND SUBTOTAL (ASSUMING BLM BORROW SITES):	**$3,099,413.00**
GRAND SUBTOTAL (ASSUMING NO BLM BORROW SITES):	**$6,539,665.25**
15% INDIRECT COSTS (ASSUMING BLM BORROW SITES):	$464,911.95
15% INDIRECT COSTS (ASSUMING NO BLM BORROW SITES):	$980,949.79
GRAND TOTAL (ASSUMING BLM BORROW SITES):	**$3,564,324.95**
GRAND TOTAL (ASSUMING NO BLM BORROW SITES):	**$7,520,615.04**

Note: Orange represents changes by NRCS Engineer

CALFED Education Sections Phase 3									
	Year 1	Year 2	Year 3	Total					Phase 4
NEED Camp	80,750	80,750		161,500					67,300
WSRCD:									
Ed Coordinator	14,976	14,976	14,976	44,928	2 days/wk 832 hrs/yr @ $18/hr				5,000
Community Tours	500	500	500	1,500	2/year @ $250 ea				
History booklet	1,000	2,000	1,750	4,750	250 photos @ $3 ea, 160 hrs @ $25/hr				
				-	11.17, color, saddle stitch				
Brochures	6,250			6,250	5000 @ $1.25 ea				
Community presentations	200	200	200	600	4/year 3 years @ $50 ea				
Slide show/powerpoint	3,500	250	250	4,000	120 hrs @ $25/hr and annual update				
Video production	48,500	20,000	59,000	127,500	30 min @ $2,000 finished minute=$60,000				25,000
					Interviews (film, edit, travel) $4000, Special effects $28,000				
					Script writing $4050, PBX Supervision $8500				
					Duplication, uplink, demos $12,500, Distribution $10,000				
Total	**155,676**	**118,676**	**76,676**	**351,028**				Total Ph4	**97,300**
WSRCD Only	74,926	37,926	76,676	189,528				WSRCD	30,000
Budget by Type of Work									
Phase 3	Salary & Benefits			44,928					5000
	Service Contracts			257,500	Ph3:NEED 161,500; PBS 96,000		Ph4: NEED 67,300; PBS 25,000		87300
	Supplies & Material Contracts			48,600					5000
	Other Direct								

Education Budget by Quarter																
													Phase 3			
Phase 3	**2001-1**	**2001-2**	**2001-3**	**2001-4**	**2002-1**	**2002-2**	**2002-3**	**2002-4**	**2003-1**	**2003-2**	**2003-3**	**2003-4**	**Total**			
NEED Camp	20,187	20,187	20,187	20,187	20,187	20,187	20,187	20,191					161,500			
Coordinator	3,744	3,744	3,744	3,744	3,744	3,744	3,744	3,744	3,744	3,744	3,744	3,744	44,928			
Tours		250		250		250		250		250		250	1,500			
History bk		500	500		500	500	500	500	450	450	450	400	4,750			
Brochure		2,000	4,350										6,350			
Community	50	50	50	50	50	50	50	50	50	50	50	50	600			
Powerpt	1,000	1,000	1,500				250				250		4,000			
Video	5,000	5,000	28,500	10,000	5,000	5,000	5,000	5,000	5,000	5,000	40,000	9,000	127,500			
Total	**29,981**	**32,731**	**58,831**	**34,231**	**29,481**	**29,731**	**29,731**	**29,735**	**9,244**	**9,494**	**44,494**	**13,444**	**351,128**			
WSRCD Only	9,794	12,544	38,644	14,044	9,294	9,544	9,544	9,544	9,244	9,494	44,494	13,444	189,628			

																Phase 4
Phase 4									**2003-1**	**2003-2**	**2003-3**	**2003-4**	**03 Total**	**2004-1**	**2004-2**	**Total**
NEED Camp									16,825	16,825	16,825	16,825	67,300			67,300
																-
Coordinator											1,250	1,250	2,500	1,250	1,250	5,000
Tours																-
History bk																-
Brochure																-
Community																-
Powerpt																-
Video											6,250	6,250	12,500	6,250	6,250	25,000
																-
Total									**16,825**	**16,825**	**24,325**	**24,325**	**82,300**	**7,500**	**7,500**	**97,300**
																-
WSRCD Only											7,500	7,500	15,000	7,500	7,500	30,000

Western Shasta Resource Conservation District

Lower Clear Creek Floodway Restoration Project Phases 3 & 4

APPENDIX

LETTERS OF SUPPORT

SHASTA COUNTY

BOARD OF SUPERVISORS

1815 Yuba Street, Suite 1
Redding, California 96001
(530) 225-5557
(800) 479-8009
(530) 225-5189-FAX

April 17, 2000

Tom Engstrom, President
Western Shasta Resource Conservation District
3294 Bechelli Lane
Redding, CA 96002-2005

Subject: Lower Clear Creek Channel Project, Phases 3 and 4

Dear Mr. Engstrom:

Shasta County wholeheartedly supports the Western Shasta RCD in their efforts to improve Lower Clear Creek, including the work that they have proposed in Phases 3 and 4. Western Shasta RCD is a local special district which has adopted a thoughtful, balanced, and science-based approach to conservation. Lower Clear Creek is an area with a lot of potential, and which continues to be developed for environmental, educational, and recreational uses. Gravel replenishment, mechanical restoration, revegetation, construction of engineered wetlands, and other works entailed in Phases 3 and 4 will further restore and enhance the functionality of this watercourse.

Western Shasta RCD has a strong track record of success in improving habitat along Lower Clear Creek. Mr. Jeff Souza, Western Shasta RCD's Projects Manager, is to be commended for these achievements. When county staff has had occasion to work with Mr. Souza, they have found him to be a very capable and able leader in the preparation and administration of these contracts.

Shasta County endorses Phases 3 and 4 of the Lower Clear Creek Channel Project. We encourage CALFED and other potential funding agencies to assist the Western Shasta RCD in their efforts to make this worthwhile project a reality.

Sincerely,

Irwin Fust, Chairman
Shasta County Board of Supervisors

Copy:
Jim Cook, Director
Planning Department

WALLY HERGER
2D DISTRICT, CALIFORNIA

PLEASE REPLY TO:

☐ WASHINGTON OFFICE:
2433 RAYBURN HOUSE OFFICE BUILDING
(202) 225-3076

DISTRICT OFFICES:

☐ 55 INDEPENDENCE CIRCLE, SUITE 104
CHICO, CA 95973
(530) 893-8363

☑ 410 HEMSTED DRIVE, SUITE 115
REDDING, CA 96002
(530) 223-5898

COMMITTEE ON
WAYS AND MEANS

COMMITTEE ON
THE BUDGET

Congress of the United States
House of Representatives
Washington, DC 20515–0502

May 2, 2000

Steve Ritchie
CALFED Acting Executive Director
1416 Ninth Street, Suite 1155
Sacramento, CA 95814

Dear Steve:

I am writing in strong support of continued CALFED funding for the Western Shasta Resource Conservation District (RCD), which is taking a lead role in the restoration of the Lower Clear Creek Floodway. I appreciate CALFED's past support of this important project, and I believe that funding for Phase 3 and 4 is well within the parameters of CALFED's mandate.

Continued funding will allow the RCD to complete rehabilitation of two reaches of clear creek by restoring a natural channel and floodplain morphology, and native riparian vegetation. There are clear benefits to the fishery and to water quality.

I look forward to your favorable review of this grant request.

Sincerely,

Wally Herger

Wally Herger
Member of Congress

WH:hh

DIANNE FEINSTEIN
CALIFORNIA

COMMITTEE ON APPROPRIATIONS
COMMITTEE ON THE JUDICIARY
COMMITTEE ON RULES AND ADMINISTRATION

United States Senate

WASHINGTON, DC 20510-0504

May 2, 2000

Mr. Tom Engstrom
Director
Western Shasta Resource Conservation District
3179 Bechelli Lane
Suite 110
Redding, California 96002

Dear Mr. Engstrom:

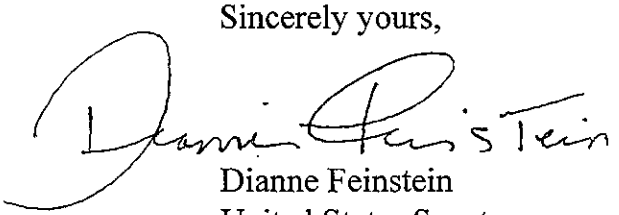
Thank you very much for contacting me regarding the grant application Western Shasta Resource Conservation District has submitted to CALFED.

I am pleased to support the efforts Western Shasta Resource Conservation District has made to obtain funding. I have contacted Mr. Lester Snow from CALFED on your behalf and am enclosing a copy of that correspondence. The agency will notify me of any decision that it makes, and I will let you know what I hear regarding your proposal.

I thank you again for contacting my office and hope that I can be of assistance. If you have any additional questions or comments please feel free to contact me or Juliette Cagigas of my Los Angeles office at (310) 914-7300.

With warmest personal regards.

Sincerely yours,



Dianne Feinstein
United States Senator

DF:jcc

FRESNO OFFICE:
1130 O Street
Suite 2446
Fresno, CA 93721
(559) 485-7430

LOS ANGELES OFFICE:
11111 Santa Monica Boulevard
Suite 915
Los Angeles, CA 90025
(310) 914-7300

SAN DIEGO OFFICE:
750 B Street
Suite 1030
San Diego, CA 92101
(619) 231-9712

SAN FRANCISCO OFFICE:
525 Market Street
Suite 3670
San Francisco, CA 94105
(415) 536-6868

Assembly
California Legislature

DICK DICKERSON
ASSEMBLYMAN, SECOND DISTRICT

CAPITOL ADDRESS:
STATE CAPITOL
P.O. BOX 942849
SACRAMENTO, CA 94249-0001
(916) 319-2002
FAX (916) 319-2102

DISTRICT OFFICE:
100 EAST CYPRESS AVENUE
SUITE 100
REDDING, CA 96002
(530) 223-6300
FAX (530) 223-6737

May 1, 2000

Mr. Steve Ritchie, Acting Director
CALFED Bay-Delta Program
1416 Ninth St., Suite 1155
Sacramento, CA 95814

RE: Grant application for Western Shasta Resource Conservation District

Dear Mr. Ritchie:

As an avid supporter of the Western Shasta Resource Conservation District's (WSRCD) work to restore Lower Clear Creek to a healthy and functional watershed, I want to express my strong support for their CALFED grant proposal for Phases 3 and 4.

The work accomplished to date on the Lower Channel has already had considerable benefits. Phases 3 and 4 are critical to completing the project. The complete Lower Channel Project represents full-scale implementation of an ecosystem restoration program to increase at-risk species, which includes Chinook salmon and steelhead, improve ecosystem processes and biotic communities, and restore functional habitat types.

WSRCD is a model for involving all significant partners in the restoration process, from theNational Park Service, Fish and Wildlife Service, Bureau of Reclamation, Bureau of Land Management, Natural Resources Conservation Service, Department of Fish & Game, Department of Water Resources, State Water Quality Control Board, Department of Forestry & Fire Protection, Shasta County, Shasta-Tehama Bioregional Council, Lower Clear Creek Coordinated Resource Management Planning Group, both large and small landowners and more.

I encourage CALFED to continue their partnership in supporting the Lower Clear Creek watershed restoration project.

Sincerely,

DICK DICKERSON, Assemblyman
2nd District

DD:lt

CC: WSRCD

FOURTH SENATE DISTRICT
REPRESENTING THE COUNTIES OF:
COLUSA, GLENN, SHASTA, SISKIYOU,
SOLANO (EXCEPT VALLEJO), SUTTER,
TEHAMA, TRINITY, YOLO;
PORTIONS OF BUTTE AND
SACRAMENTO

California State Senate

SENATOR
K. MAURICE JOHANNESSEN
FOURTH SENATORIAL DISTRICT

COMMITTEES:
BUSINESS & PROFESSIONS
VICE CHAIR
AGRICULTURE & WATER
RESOURCES
FINANCE, INVESTMENT &
INTERNATIONAL TRADE
NATURAL RESOURCES &
WILDLIFE
VETERANS AFFAIRS
CHAIR

May 10, 2000

Mr. Steve Ritchie
Acting Executive Director
CALFED Bay-Delta Water Program
1416 9th Street, Suite 1155
Sacramento, CA 95814

Re: Letter in Support of Grant Application

Dear Mr. Ritchie:

The purpose of this letter is to inform you of my strong support for the CALFED Watershed grant application submitted by the Western Shasta Resource Conservation District. This application requests aid for work on the Clear Creek watershed in Shasta County.

Last year, the Western Shasta Resource Conservation District received CALFED Watershed grants to start work on Phases 1 & 2 of the Clear Creek watershed. Phases 1 & 2 involved the rehabilitation of the lower channel of Clear Creek, as well as erosion control, fuels reduction, and education in Clear Creek. I urge your timely consideration for funding of the final segments of this important project.

This application seeks approximately $5 million in Fiscal Year 2000-01 for work on Phases 3 & 4 to complete the rehabilitation of two reaches of Clear Creek by actively restoring a natural channel and floodplain morphology as well as native riparian vegetation.

The implementation of this project is under the auspices of the lower Clear Creek Technical Work Group and Coordinated Resource Management Plan Group, which should prevent any potential third party impacts. All phases, including restoration of the borrow site, are or will be on public land. Funding this project will rehabilitate the two sites where alteration of the creek has been the most extensive and, when combined with the removal of Saeltzer Dam, will complete all large-scale channel rehabilitation needs on Clear Creek.

PLEASE REPLY TO:

☐ STATE CAPITOL
SACRAMENTO, CA 95814
(916) 445-3353

☑ 410 HEMSTED DRIVE
SUITE 200
REDDING, CA 96002
(530) 224-4706

☐ 2967 DAVISON COURT
SUITE A-1
COLUSA, CA 95932
(530) 458-4161

☐ 1170 NORTH LINCOLN STREET
SUITE 106
DIXON, CA 95620
(707) 678-3195

Specifically, Phase 3 will focus on reconstructing and raising the bankfull channel above bedrock and hardpan. Functional floodplains will again be created at both reaches, and revegetated with native riparian species. Off-channel wetlands will be created and enhanced, where appropriate, at Reading Bar Reach.

Phase 4 will restore flow into a section of historical channel that was diverted by instream aggregate activity. Excavated bars and floodplains will be restored and revegetated with native riparian vegetation, and the creation of functional floodplains and off-channel wetlands will continue at the Reading Bar Reach.

Public outreach is an important component of the proposal. The Western Shasta Resource Conservation District intends to cooperatively work with the public, willing private landowners, and government agencies to perform this conservation work on Clear Creek.

The Western Shasta Resource Conservation District has a rich history of success and is one of the more ambitious RCD's in my Fourth Senate District. Its members have worked for several years to build community support and foster cooperation from private and public landowners. Furthermore, Clear Creek was identified by CALFED fishery biologists as the Sacramento River tributary with the best chance of dramatically improving salmon spawning habitat.

Most significantly, funding of this grant application will send a strong message to rural communities throughout Northern California that watersheds provide an important tangible resource. Californians throughout the state are willing to support well-reasoned and effective conservation and stewardship efforts.

Thank you for your serious consideration of this grant application.

Sincerely,

K. MAURICE JOHANNESSEN
Fourth Senate District

May 10, 2000

Steve Ritchie, Acting Director
CALFED Bay-Delta Program
1416 Ninth St., Suite 1155
Sacramento, CA 95814

RE: Grant application by the Western Shasta Resource Conservation District

Dear Mr. Ritchie,

As a supporter of the Western Shasta Resource Conservation District's (WSRCD) project to restore Lower Clear Creek to a healthy and functional watershed, I want to express KIXE's interest in assisting the District via the nationwide network of public television stations. The satellite distribution of a well produced documentary will educate the public, agencies, academia and government on the challenges and successes of the Lower Clear Creek Channel Restoration Project. It would certainly inspire and support similar projects around the nation. Nationwide broadcast of this valuable information coincides perfectly with the mission of public television.

We understand the Lower Channel Project represents full-scale implementation of an ecosystem restoration program to increase at-risk species, which includes Chinook salmon and steelhead. As a model for landscape-level restoration, we feel the size of this project offers valuable lessons in how natural relationships within a watershed are managed locally, balanced with the intrigue of multi-agency goals. It is a story that has national significance.

As a PBS affiliate, KIXE-TV has access to a nationwide distribution system that can service the entire public broadcasting network in the United States. Through this gateway, KIXE-TV has presented other series and single programs on public stations around the country including TRAVELING CALIFORNIA STATE PARKS (travel series), STAGE 9 (music series), WORLD OF COLLECTOR CARS (series about collectible automobiles) and MARK KISTLER'S IMAGINATION STATION (series of children's drawing programs). **Public television is always looking for good locally produced programs with regional content and national interest.**

Moreover, our production team has produced several pieces on related topics over the years, covering water, ecology and conservation issues. Indeed, KIXE proudly displays a communications award in recognition of our contribution to soil conservation, presented by the Area One Conservation District.

In this light, KIXE-TV encourages CALFED to continue supporting the Lower Clear Creek watershed restoration project, and we look forward to collaborating with WSRCD in this worthwhile endeavor.

Respectfully,

Brad Fay
Program Director

RESOLUTION OF THE
WESTERN SHASTA RESOURCE CONSERVATION DISTRICT
TO REQUEST CALFED FUNDS FOR LOWER CLEAR CREEK

RESOLUTION #00-05

WHEREAS, the Western Shasta Resource Conservation District desires to assist landowners with conservation projects which protect water, soil, woodland and other resources; and

WHEREAS, the district is funded primarily through contracts, agreements and grants with the state, federal government, any county, city, other public district, or organization in this state; and

WHEREAS, the district is currently implementing Phase 2 of a 4-phase project to restore the health and function of Lower Clear Creek; and

WHEREAS, CALFED has funded Phase 2 of this project and has issued a 2001 Proposal Solicitation Package;

NOW, THEREFORE, BE IT RESOLVED, that the Board of Directors of the Western Shasta Resource Conservation District hereby approves the filing of an application and proposal with the CALFED Ecosystem Restoration Projects and Programs for Phases 3 and 4 of the Lower Clear Creek Project.

I hereby certify that the above is a true and correct copy of Resolution 00-05, adopted on the motion of Director Schoefer, seconded by Director Gray, and duly passed at a special board meeting held by the Board of Directors at 8:00 A.M. on Friday, May 6, 2000, at the Western Shasta Resource Conservation District office, 3294 Bechelli Lane, Redding, CA.

Roll Call was as follows:

AYES: Baer, Schoefer, Gray, Engstrom
NOES:
ABSTAIN:
ABSENT: Jolley, Thompson, Bailey

Submitted by Mary Schroeder, Administrative Manager

Mary Schroeder

Western Shasta Resource Conservation District

Lower Clear Creek Floodway Restoration Project Phases 3 & 4

APPENDIX

ENVIRONMENTAL COMPLIANCE CHECKLIST

Environmental Compliance Checklist

Applicants must fill out this Environmental Compliance Checklist. Applications must contain answers to the following questions to be responsive and to be considered for funding. *Failure to answer these questions and include them with the application will result in the application being considered nonresponsive and not considered for funding.*

1. Do any of the actions included in the proposal require compliance with either the California Environmental Quality Act (CEQA), the National Environmental Policy Act (NEPA), or both?

X
YES

_____
NO

2. If you answered yes to #1, identify the lead government agency for CEQA/NEPA compliance.

CEQA – Western Shasta Resource Conservation District NEPA – Bureau of Reclamation

3. If you answered no to #1, explain why CEQA/NEPA compliance is not required for the actions in the proposal.

4. If CEQA/NEPA compliance is required, describe how the project will comply with either or both of these laws. Describe where the project is in the compliance process and the expected date of completion.

Final Joint CEQA Initial Study/NEPA Environmental Assessment, Mitigated Negative Declaration/Finding of No Significant Impact was issued November 1999.

5. Will the applicant require access across public or private property that the applicant does not own to accomplish the activities in the proposal?

X
YES

_____
NO

If yes, the applicant must attach written permission for access from the relevant property owner(s). Failure to include written permission for access may result in disqualification of the proposal during the review process. Research and monitoring field projects for which specific field locations have not been identified will be required to provide access needs and permission for access with 30 days of notification of approval.

Permissions attached: Horsetown Clear Creek Preserve (HCCP)
Ryan Williams

The work is taking place on Bureau of Land Management property. BLM is one of the federal lead agencies on this project and a project proponent, and signs all work plans.

6. Please indicate what permits or other approvals may be required for the activities contained in your proposal. Check boxes that apply.

LOCAL

Conditional use permit	____	
Variance	____	
Subdivision Map Act approval	____	
Grading Permit	X	
General plan amendment	____	
Specific plan approval	____	
Rezone	____	
Williamson Act contract cancellation	____	
Other: Indian Trust Assets (Redding Rancheria, Wintu Tribe) **(Please specify)**		
None required	____	

STATE

CESA Compliance	X	**(CDFG)**
Streambed alteration permit	X	**(CDFG)**
CWA § 401 certification	X	**(RWQCB)**
Coastal development permit	_____	**(Coastal Commission/BCDC)**
Reclamation Board approval	X	
Notification	_____	**(DEPc, BCDC)**
Other _____ **(please specify)**		
None required	_____	

FEDERAL

ESA Consultation	X	**(USFWS, NMFS)**
Rivers & Harbors Act Permit	_____	**(ACOE)**
CWA § 404 Permit	X	**(ACOE)**
Other: _____ **(please specify)**		
None required	_____	

DPA = Delta Protection Commission
CWA = Clean Water Act
CESA = California Endangered Species Act
USFWS = U.S. Fish & Wildlife Service
ACOE = U.S. Army Corps of Engineers

ESA = Endangered Species Act
CDFG = California Department of Fish & Game
RWQCB = Regional Water Quality Control Board
BCDC = Bay Conservation & Development Comm.

Land Use Checklist

All applicants must fill out this Land Use Checklist for their proposal. Applications must contain answers to the following questions to be responsive and to be considered for funding. ***Failure to answer these questions and include them with the application will result in the application being considered nonresponsive and not considered for funding.***

1. Do the actions in the proposal involve physical changes to the land (i.e., grading, planting, vegetation, or breeching levees) or restrictions in land use (i.e. conservation easement or placement of land in a wildlife refuge)?

YES — **YES** | _____ — **NO**

2. If NO to #1, explain what type of actions are involved in the proposal (i.e. research only, planning only).

3. If YES to #1, what is the proposed land use change or restriction under the proposal?

Consolidating braided channels in the floodplain; restoring a natural stream channel; creating off-channel wetlands.

4. If YES to #1, is the land currently under a Williamson Act contract?

_____ — **YES** | NO — **NO**

5. If YES to #1, answer the following:

Current land use	stream bed and floodplain
Current zoning	F1 designated floodway
Current general plan designation	F1 designated floodway

6. If YES to #1, is the land classified as Prime Farmland, Farmland of Statewide Importance or Unique Farmland on the Department of Conservation Important Farmland Maps?

_____ — **YES** | NO — **NO** | _____ — **DON'T KNOW**

7. If YES to #1, how many acres of land will be subject to physical change or land use restrictions under the proposal? 78.52 acres

8. If YES to #1, is the property currently being commercially farmed or grazed?

_____ — **YES** | NO — **NO**

9. If YES to #8, what are the number of employees/acre _____
the total number of employees _____

10. Will the applicant acquire any interest in land under the proposal (fee title or a conservation easement)?

_____ NO
YES NO

11. What entity/organization will hold the interest? _____

12. If YES to #10, answer the following:

Total number of acres to be acquired under proposal	_____
Number of acres to be acquired in fee	_____
Number of acres to be subject to conservation easement	_____

13. For all proposals involving physical changes to the land or restriction in land use, what entity or organization will:

manage the property	Bureau of Land Management
provide operations and maintenance services	Western Shasta Resource Conservation District
conduct monitoring	Western Shasta Resource Conservation District and the U.S. Fish & Wildlife Service

14. For land acquisitions (fee title or easements), will existing water rights also be acquired?

_____ NO
YES NO

15. Does the applicant propose any modifications to the water right or change in the delivery of the water?

_____ NO
YES NO

16. If YES to #15, describe: _____

TEMPORARY ENTRY PERMIT

Permission is hereby given to the Western Shasta Resource Conservation District and its officers, employees, agents, and persons under contract therewith, hereafter referred to as the Sponsor, by the Permittor named below to enter, with all necessary equipment, in the County of Shasta, State of California, described as follows:

Section 36 T, 31 N,R 6 W, MDBM. Mining Claim No. _____-_____

Assessors Parcel No. 41-350-51 Claimant _____

FOR THE PURPOSE OF:

1. Removal of dredge tailings.
2. Placement and removal of temporary haul road.
3. Exotic vegetation control.
4. Revegetation of floodplain
5. Construction of new floodplain surface.
6. Monitering / Maintenance.

and for such other purposes as may be incidental thereto subject to the following provisions:

1. Reasonable precautions.

2. Permittor assumes no liability for loss or damage to property or injuries to or deaths of agents, contractors, or employees of Sponsor by reason of the exercise of privileges conferred herein.

3. Nothing in this permit shall preclude Permittor from filing a claim, or claims, for any loss or expense which Permittor or his tenant may suffer caused by arising out of the exercise by the Sponsor of the rights herein granted.

4. Sponsor agrees to indemnify and hold harmless Permittor from any damage caused by Sponsor's authorized use of said property. Sponsor agrees also to either indemnify Permittor for any damage or destruction to its roads or fences, or other property, occurring by reason of the exercise of rights granted herein, or to replace or restore said property.

5. This permit shall expire on 12/31/02.

6. This permit is granted subject to the provisions set forth above.

Permittor HCCP - Gene Clark

Signature Gene Clark Date 10-26-99

Address P.O. Box 107

State, Zip Igo, CA 96047 Tele. No. 241-8187

Permit accepted: Western Shasta Resource Conservation District.

By Phil Scholer, Title Pres. W.S.R.C.D.

Jeff:c/rcd/contract/26-21-1/horsetowntempntry.doc

Western Shasta Resource Conservation District

Lower Clear Creek Floodway Restoration Project Phases 3 & 4

APPENDIX

PROPOSAL REQUIREMENTS

STATE OF CALIFORNIA

NONDISCRIMINATION COMPLIANCE STATEMENT

STD. 19 (REV. 3-95) FMC

COMPANY NAME: Western Shasta Resource Conservation District

The company named above (hereinafter referred to as "prospective contractor") hereby certifies, unless specifically exempted, compliance with Government Code Section 12990 (a-f) and California Code of Regulations, Title 2, Division 4, Chapter 5 in matters relating to reporting requirements and the development, implementation and maintenance of a Nondiscrimination Program. Prospective contractor agrees not to unlawfully discriminate, harass or allow harassment against any employee or applicant for employment because of sex, race, color, ancestry, religious creed, national origin, disability (including HIV and AIDS), medical condition (cancer), age, marital status, denial of family and medical care leave and denial of pregnancy disability leave.

CERTIFICATION

I, the official named below, hereby swear that I am duly authorized to legally bind the prospective contractor to the above described certification. I am fully aware that this certification, executed on the date and in the county below, is made under penalty of perjury under the laws of the State of California.

OFFICIAL'S NAME: Tom Engstrom, President, Board of Directors

DATE EXECUTED: May 12, 2000

EXECUTED IN THE COUNTY OF: Shasta

PROSPECTIVE CONTRACTOR'S SIGNATURE

PROSPECTIVE CONTRACTOR'S TITLE

PROSPECTIVE CONTRACTOR'S LEGAL BUSINESS NAME

NO BIDDERS IDENTIFIED AT THIS TIME - NOT APPLICABLE

State of California
The Resources Agency
Department of Water Resources

Agreement No. _____

Exhibit _____

NONCOLLUSION AFFIDAVIT TO BE EXECUTED BY BIDDER AND SUBMITTED WITH BID FOR PUBLIC WORKS

STATE OF CALIFORNIA)
)ss.
COUNTY OF _____)

_____ , being first duly sworn, deposes and
(name)

says that he or she is _____ of
(position title)

_____ ,
(the bidder)

the party making the foregoing bid that the bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation; that the bid is genuine and not collusive or sham; that the bidder has not directly or indirectly induced or solicited any other bidder to put in a false sham bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or that anyone shall refrain from bidding; that the bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the bidder or any other bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other bidder, or to secure any advantage against the public body awarding the contract of anyone interested in the proposed contract; that all statements contained in the bid are true; and, further, that the bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay, any fee to any corporation, partnership, company, association, organization, bid depository, or to any member or agent thereof to effectuate a collusive or sham bid.

DATED: _____

By _____
(person signing for bidder)

Subscribed and sworn to before me on

_____

_____
(Notary Public)

(Notarial Seal)

OMB Approval No. 0348-0043

APPLICATION FOR FEDERAL ASSISTANCE

2. DATE SUBMITTED	Applicant Identifier
May 12, 2000	N/A
3. DATE RECEIVED BY STATE	State Application Identifier
N/A	N/A
4. DATE RECEIVED BY FEDERAL AGENCY	Federal Identifier

1. TYPE OF SUBMISSION:

Application
- ☐ Construction
- ☒ Non-Construction

Preapplication
- ☐ Construction
- ☐ Non-Construction

5. APPLICANT INFORMATION

Legal Name: Western Shasta Resource Conservation District

Organizational Unit:

Address *(give city, county, State, and zip code)*:
3294 Bechelli Lane
Redding, Ca. 96002
Shasta County

Name and telephone number of person to be contacted on matters involving this application *(give area code)*
Jeff Souza
(530) 224-3250

6. EMPLOYER IDENTIFICATION NUMBER *(EIN)*:
68-0285373

7. TYPE OF APPLICANT: *(enter appropriate letter in box)* G

A. State
B. County
C. Municipal
D. Township
E. Interstate
F. Intermunicipal
G. Special District
H. Independent School Dist.
I. State Controlled Institution of Higher Learning
J. Private University
K. Indian Tribe
L. Individual
M. Profit Organization
N. Other (Specify) _____

8. TYPE OF APPLICATION:

☒ New ☐ Continuation ☐ Revision

If Revision, enter appropriate letter(s) in box(es) ☐ ☐

A. Increase Award B. Decrease Award C. Increase Duration
D. Decrease Duration Other*(specify)*:

9. NAME OF FEDERAL AGENCY:

10. CATALOG OF FEDERAL DOMESTIC ASSISTANCE NUMBER:

TITLE:

11. DESCRIPTIVE TITLE OF APPLICANT'S PROJECT:
Lower Clear Creek
Floodway Restoration
PHASE #3 ONLY

12. AREAS AFFECTED BY PROJECT *(Cities, Counties, States, etc.)*:
Clear Creek Shasta County CA

13. PROPOSED PROJECT		14. CONGRESSIONAL DISTRICTS OF:	
Start Date	Ending Date	a. Applicant	b. Project
1/1/01	12/31/03	2nd District	2nd District

15. ESTIMATED FUNDING:

a. Federal	$ 5,652,724.00
b. Applicant	$ .00
c. State	$ .00
d. Local	$ .00
e. Other	$ .00
f. Program Income	$ .00
g. TOTAL	$ 5,652,724.00

16. IS APPLICATION SUBJECT TO REVIEW BY STATE EXECUTIVE ORDER 12372 PROCESS?

a. YES. THIS PREAPPLICATION/APPLICATION WAS MADE AVAILABLE TO THE STATE EXECUTIVE ORDER 12372 PROCESS FOR REVIEW ON:

DATE _____

b. No. ☒ PROGRAM IS NOT COVERED BY E. O. 12372
☐ OR PROGRAM HAS NOT BEEN SELECTED BY STATE FOR REVIEW

17. IS THE APPLICANT DELINQUENT ON ANY FEDERAL DEBT?

☐ Yes If "Yes," attach an explanation. ☒ No

18. TO THE BEST OF MY KNOWLEDGE AND BELIEF, ALL DATA IN THIS APPLICATION/PREAPPLICATION ARE TRUE AND CORRECT, THE DOCUMENT HAS BEEN DULY AUTHORIZED BY THE GOVERNING BODY OF THE APPLICANT AND THE APPLICANT WILL COMPLY WITH THE ATTACHED ASSURANCES IF THE ASSISTANCE IS AWARDED.

a. Type Name of Authorized Representative	b. Title	c. Telephone Number
Tom Engstrom	President, Board of Dir	(530) 224-3250
d. Signature of Authorized Representative		e. Date Signed
Tom Engstrom		May 12, 2000

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Standard Form 424 (Rev. 7-97)
Prescribed by OMB Circular A-102

Public reporting burden for this collection of information is estimated to average 45 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0043), Washington, DC 20503.

PLEASE DO NOT RETURN YOUR COMPLETED FORM TO THE OFFICE OF MANAGEMENT AND BUDGET. SEND IT TO THE ADDRESS PROVIDED BY THE SPONSORING AGENCY.

This is a standard form used by applicants as a required facesheet for preapplications and applications submitted for Federal assistance. It will be used by Federal agencies to obtain applicant certification that States which have established a review and comment procedure in response to Executive Order 12372 and have selected the program to be included in their process, have been given an opportunity to review the applicant's submission.

Item:	Entry:
1.	Self-explanatory.
2.	Date application submitted to Federal agency (or State if applicable) and applicant's control number (if applicable).
3.	State use only (if applicable).
4.	If this application is to continue or revise an existing award, enter present Federal identifier number. If for a new project, leave blank.
5.	Legal name of applicant, name of primary organizational unit which will undertake the assistance activity, complete address of the applicant, and name and telephone number of the person to contact on matters related to this application.
6.	Enter Employer Identification Number (EIN) as assigned by the Internal Revenue Service.
7.	Enter the appropriate letter in the space provided.
8.	Check appropriate box and enter appropriate letter(s) in the space(s) provided: -- "New" means a new assistance award. -- "Continuation" means an extension for an additional funding/budget period for a project with a projected completion date. -- "Revision" means any change in the Federal Government's financial obligation or contingent liability from an existing obligation.
9.	Name of Federal agency from which assistance is being requested with this application.
10.	Use the Catalog of Federal Domestic Assistance number and title of the program under which assistance is requested.
11.	Enter a brief descriptive title of the project. If more than one program is involved, you should append an explanation on a separate sheet. If appropriate (e.g., construction or real property projects), attach a map showing project location. For preapplications, use a separate sheet to provide a summary description of this project.

Item:	Entry:
12.	List only the largest political entities affected (e.g., State, counties, cities).
13.	Self-explanatory.
14.	List the applicant's Congressional District and any District(s) affected by the program or project.
15.	Amount requested or to be contributed during the first funding/budget period by each contributor. Value of in-kind contributions should be included on appropriate lines as applicable. If the action will result in a dollar change to an existing award, indicate *only* the amount of the change. For decreases, enclose the amounts in parentheses. If both basic and supplemental amounts are included, show breakdown on an attached sheet. For multiple program funding, use totals and show breakdown using same categories as item 15.
16.	Applicants should contact the State Single Point of Contact (SPOC) for Federal Executive Order 12372 to determine whether the application is subject to the State intergovernmental review process.
17.	This question applies to the applicant organization, not the person who signs as the authorized representative. Categories of debt include delinquent audit disallowances, loans and taxes.
18.	To be signed by the authorized representative of the applicant. A copy of the governing body's authorization for you to sign this application as official representative must be on file in the applicant's office. (Certain Federal agencies may require that this authorization be submitted as part of the application.)

OMB Approval No. 0348-0040

ASSURANCES - NON-CONSTRUCTION PROGRAMS

PLEASE DO NOT RETURN YOUR COMPLETED FORM TO THE OFFICE OF MANAGEMENT AND BUDGET. SEND IT TO THE ADDRESS PROVIDED BY THE SPONSORING AGENCY.

NOTE: Certain of these assurances may not be applicable to your project or program. If you have questions, please contact the awarding agency. Further, certain Federal awarding agencies may require applicants to certify to additional assurances. If such is the case, you will be notified.

As the duly authorized representative of the applicant, I certify that the applicant:

1. Has the legal authority to apply for Federal assistance and the institutional, managerial and financial capability (including funds sufficient to pay the non-Federal share of project cost) to ensure proper planning, management and completion of the project described in this application.

2. Will give the awarding agency, the Comptroller General of the United States and, if appropriate, the State, through any authorized representative, access to and the right to examine all records, books, papers, or documents related to the award; and will establish a proper accounting system in accordance with generally accepted accounting standards or agency directives.

3. Will establish safeguards to prohibit employees from using their positions for a purpose that constitutes or presents the appearance of personal or organizational conflict of interest, or personal gain.

4. Will initiate and complete the work within the applicable time frame after receipt of approval of the awarding agency.

5. Will comply with the Intergovernmental Personnel Act of 1970 (42 U.S.C. §§4728-4763) relating to prescribed standards for merit systems for programs funded under one of the 19 statutes or regulations specified in Appendix A of OPM's Standards for a Merit System of Personnel Administration (5 C.F.R. 900, Subpart F).

6. Will comply with all Federal statutes relating to nondiscrimination. These include but are not limited to: (a) Title VI of the Civil Rights Act of 1964 (P.L. 88-352) which prohibits discrimination on the basis of race, color or national origin; (b) Title IX of the Education Amendments of 1972, as amended (20 U.S.C. §§1681-1683, and 1685-1686), which prohibits discrimination on the basis of sex; (c) Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. §794), which prohibits discrimination on the basis of handicaps; (d) the Age Discrimination Act of 1975, as amended (42 U.S.C. §§6101-6107), which prohibits discrimination on the basis of age; (e) the Drug Abuse Office and Treatment Act of 1972 (P.L. 92-255), as amended, relating to nondiscrimination on the basis of drug abuse; (f) the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment and Rehabilitation Act of 1970 (P.L. 91-616), as amended, relating to nondiscrimination on the basis of alcohol abuse or alcoholism; (g) §§523 and 527 of the Public Health Service Act of 1912 (42 U.S.C. §§290 dd-3 and 290 ee 3), as amended, relating to confidentiality of alcohol and drug abuse patient records; (h) Title VIII of the Civil Rights Act of 1968 (42 U.S.C. §§3601 et seq.), as amended, relating to nondiscrimination in the sale, rental or financing of housing; (i) any other nondiscrimination provisions in the specific statute(s) under which application for Federal assistance is being made; and, (j) the requirements of any other nondiscrimination statute(s) which may apply to the application.

7. Will comply, or has already complied, with the requirements of Titles II and III of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (P.L. 91-646) which provide for fair and equitable treatment of persons displaced or whose property is acquired as a result of Federal or federally-assisted programs. These requirements apply to all interests in real property acquired for project purposes regardless of Federal participation in purchases.

8. Will comply, as applicable, with provisions of the Hatch Act (5 U.S.C. §§1501-1508 and 7324-7328) which limit the political activities of employees whose principal employment activities are funded in whole or in part with Federal funds.

9. Will comply, as applicable, with the provisions of the Davis-Bacon Act (40 U.S.C. §§276a to 276a-7), the Copeland Act (40 U.S.C. §276c and 18 U.S.C. §874), and the Contract Work Hours and Safety Standards Act (40 U.S.C. §§327-333), regarding labor standards for federally-assisted construction subagreements.

10. Will comply, if applicable, with flood insurance purchase requirements of Section 102(a) of the Flood Disaster Protection Act of 1973 (P.L. 93-234) which requires recipients in a special flood hazard area to participate in the program and to purchase flood insurance if the total cost of insurable construction and acquisition is $10,000 or more.

11. Will comply with environmental standards which may be prescribed pursuant to the following: (a) institution of environmental quality control measures under the National Environmental Policy Act of 1969 (P.L. 91-190) and Executive Order (EO) 11514; (b) notification of violating facilities pursuant to EO 11738; (c) protection of wetlands pursuant to EO 11990; (d) evaluation of flood hazards in floodplains in accordance with EO 11988; (e) assurance of project consistency with the approved State management program developed under the Coastal Zone Management Act of 1972 (16 U.S.C. §§1451 et seq.); (f) conformity of Federal actions to State (Clean Air) Implementation Plans under Section 176(c) of the Clean Air Act of 1955, as amended (42 U.S.C. §§7401 et seq.); (g) protection of underground sources of drinking water under the Safe Drinking Water Act of 1974, as amended (P.L. 93-523); and, (h) protection of endangered species under the Endangered Species Act of 1973, as amended (P.L. 93-205).

12. Will comply with the Wild and Scenic Rivers Act of 1968 (16 U.S.C. §§1271 et seq.) related to protecting components or potential components of the national wild and scenic rivers system.

13. Will assist the awarding agency in assuring compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (16 U.S.C. §470), EO 11593 (identification and protection of historic properties), and the Archaeological and Historic Preservation Act of 1974 (16 U.S.C. §§469a-1 et seq.).

14. Will comply with P.L. 93-348 regarding the protection of human subjects involved in research, development, and related activities supported by this award of assistance.

15. Will comply with the Laboratory Animal Welfare Act of 1966 (P.L. 89-544, as amended, 7 U.S.C. §§2131 et seq.) pertaining to the care, handling, and treatment of warm blooded animals held for research, teaching, or other activities supported by this award of assistance.

16. Will comply with the Lead-Based Paint Poisoning Prevention Act (42 U.S.C. §§4801 et seq.) which prohibits the use of lead-based paint in construction or rehabilitation of residence structures.

17. Will cause to be performed the required financial and compliance audits in accordance with the Single Audit Act Amendments of 1996 and OMB Circular No. A-133, "Audits of States, Local Governments, and Non-Profit Organizations."

18. Will comply with all applicable requirements of all other Federal laws, executive orders, regulations, and policies governing this program.

SIGNATURE OF AUTHORIZED CERTIFYING OFFICIAL	TITLE
[signature]	President, Board of Directors
APPLICANT ORGANIZATION	DATE SUBMITTED
Western Shasta Resource Conservation District	May 12, 2000

BUDGET INFORMATION - Non-Construction Programs

OMB Approval No. 0348-0044

SECTION A - BUDGET SUMMARY

Grant Program Function or Activity (a)	Catalog of Federal Domestic Assistance Number (b)	Estimated Unobligated Funds		New or Revised Budget		
		Federal (c)	Non-Federal (d)	Federal (e)	Non-Federal (f)	Total (g)
1. Lower Clear		$	$	$ 5,652,724	$	$ 5,652,724
2. Creek Floodway Restoration						
3.						
4.						
5. Totals		$	$	$ 5,562,724	$	$ 5,652,724

SECTION B - BUDGET CATEGORIES

6. Object Class Categories	GRANT PROGRAM, FUNCTION OR ACTIVITY (1)	(2)	(3)	(4)	Total (5)
a. Personnel	$ 246,101	$	$	$	$ 246,101
b. Fringe Benefits	73,827				73,827
c. Travel	13,625				13,625
d. Equipment	15,000				15,000
e. Supplies	90,575				90,575
f. Contractual	4,476,285				4,476,285
g. Construction					
h. Other					
i. Total Direct Charges *(sum of 6a-6h)*	4,915,413				4,915,413
j. Indirect Charges	737,311				737,311
k. TOTALS *(sum of 6i and 6j)*	$ 5,652,724	$	$	$	$ 5,652,724
7. Program Income	$	$	$	$	$

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Standard Form 424A (Rev. 7-97)
Prescribed by OMB Circular A-102

Previous Edition Usable

SECTION C - NON-FEDERAL RESOURCES

(a) Grant Program	(b) Applicant	(c) State	(d) Other Sources	(e) TOTALS
8.	$	$	$	$
9.				
10.				
11.				
12. TOTAL *(sum of lines 8-11)*	$	$	$	$

SECTION D - FORECASTED CASH NEEDS

	Total for 1st Year	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
13. Federal	$ 3,073,608	$ 116,728	$ 164,141	$ 2,626,873	$ 165,866
14. Non-Federal					
15. TOTAL *(sum of lines 13 and 14)*	$ 3,073,608	$ 116,728	$ 164,141	$ 2,626,873	$ 165,866

SECTION E - BUDGET ESTIMATES OF FEDERAL FUNDS NEEDED FOR BALANCE OF THE PROJECT

(a) Grant Program	FUTURE FUNDING PERIODS (Years)			
	(b) First	(c) Second	(d) Third	(e) Fourth
16.	$ 2,176,127	$ 402,990	$	$
17.				
18.				
19.				
20. TOTAL *(sum of lines 16-19)*	$ 2,176,127	$ 402,990	$	$

SECTION F - OTHER BUDGET INFORMATION

21. Direct Charges:	22. Indirect Charges:
23. Remarks:	

OMB Approval No. 0348-0043

APPLICATION FOR FEDERAL ASSISTANCE

2. DATE SUBMITTED	Applicant Identifier
May 12, 2000	N/A
3. DATE RECEIVED BY STATE	State Application Identifier
N/A	N/A
4. DATE RECEIVED BY FEDERAL AGENCY	Federal Identifier

1. TYPE OF SUBMISSION:

Application
- ☐ Construction
- ☒ Non-Construction

Preapplication
- ☐ Construction
- ☐ Non-Construction

5. APPLICANT INFORMATION

Legal Name: Western Shasta Resource Conservation District

Organizational Unit:

Address *(give city, county, State, and zip code)*:
3294 Bechelli Lane
Redding, Ca. 96002
Shasta County

Name and telephone number of person to be contacted on matters involving this application *(give area code)*
Jeff Souza
(530) 224-3250

6. EMPLOYER IDENTIFICATION NUMBER *(EIN)*:
68 – 0285373

7. TYPE OF APPLICANT: *(enter appropriate letter in box)* G

A. State
B. County
C. Municipal
D. Township
E. Interstate
F. Intermunicipal
G. Special District
H. Independent School Dist.
I. State Controlled Institution of Higher Learning
J. Private University
K. Indian Tribe
L. Individual
M. Profit Organization
N. Other (Specify) _____

8. TYPE OF APPLICATION:

☒ New ☐ Continuation ☐ Revision

If Revision, enter appropriate letter(s) in box(es) ☐ ☐

A. Increase Award B. Decrease Award C. Increase Duration
D. Decrease Duration Other *(specify)*:

_____

9. NAME OF FEDERAL AGENCY:

10. CATALOG OF FEDERAL DOMESTIC ASSISTANCE NUMBER:

☐☐ – ☐☐☐

TITLE:

11. DESCRIPTIVE TITLE OF APPLICANT'S PROJECT:

Lower Clear Creek
Floodway Restoration
PHASE #4 ONLY

12. AREAS AFFECTED BY PROJECT *(Cities, Counties, States, etc.)*:

Clear Creek Shasta County CA

13. PROPOSED PROJECT		14. CONGRESSIONAL DISTRICTS OF:	
Start Date	Ending Date	a. Applicant	b. Project
1/1/03	12/31/05	2nd District	2nd District

15. ESTIMATED FUNDING:

a. Federal	$ 3,564,325.00
b. Applicant	$ .00
c. State	$ .00
d. Local	$ .00
e. Other	$ .00
f. Program Income	$ .00
g. TOTAL	$ 3,564,325.00

16. IS APPLICATION SUBJECT TO REVIEW BY STATE EXECUTIVE ORDER 12372 PROCESS?

a. YES. THIS PREAPPLICATION/APPLICATION WAS MADE AVAILABLE TO THE STATE EXECUTIVE ORDER 12372 PROCESS FOR REVIEW ON:

DATE _____

b. No. ☒ PROGRAM IS NOT COVERED BY E. O. 12372
☐ OR PROGRAM HAS NOT BEEN SELECTED BY STATE FOR REVIEW

17. IS THE APPLICANT DELINQUENT ON ANY FEDERAL DEBT?

☐ Yes If "Yes," attach an explanation. ☒ No

18. TO THE BEST OF MY KNOWLEDGE AND BELIEF, ALL DATA IN THIS APPLICATION/PREAPPLICATION ARE TRUE AND CORRECT, THE DOCUMENT HAS BEEN DULY AUTHORIZED BY THE GOVERNING BODY OF THE APPLICANT AND THE APPLICANT WILL COMPLY WITH THE ATTACHED ASSURANCES IF THE ASSISTANCE IS AWARDED.

a. Type Name of Authorized Representative	b. Title	c. Telephone Number
Tom Engstrom	President, Board of Dir	(530) 224-3250
d. Signature of Authorized Representative		e. Date Signed
[signature]		May 12, 2000

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Standard Form 424 (Rev. 7-97)
Prescribed by OMB Circular A-102

PLEASE DO NOT RETURN YOUR COMPLETED FORM TO THE OFFICE OF MANAGEMENT AND BUDGET. SEND IT TO THE ADDRESS PROVIDED BY THE SPONSORING AGENCY.

This is a standard form used by applicants as a required facesheet for preapplications and applications submitted for Federal assistance. It will be used by Federal agencies to obtain applicant certification that States which have established a review and comment procedure in response to Executive Order 12372 and have selected the program to be included in their process, have been given an opportunity to review the applicant's submission.

Item:	Entry:
1.	Self-explanatory.
2.	Date application submitted to Federal agency (or State if applicable) and applicant's control number (if applicable).
3.	State use only (if applicable).
4.	If this application is to continue or revise an existing award, enter present Federal identifier number. If for a new project, leave blank.
5.	Legal name of applicant, name of primary organizational unit which will undertake the assistance activity, complete address of the applicant, and name and telephone number of the person to contact on matters related to this application.
6.	Enter Employer Identification Number (EIN) as assigned by the Internal Revenue Service.
7.	Enter the appropriate letter in the space provided.
8.	Check appropriate box and enter appropriate letter(s) in the space(s) provided: -- "New" means a new assistance award. -- "Continuation" means an extension for an additional funding/budget period for a project with a projected completion date. -- "Revision" means any change in the Federal Government's financial obligation or contingent liability from an existing obligation.
9.	Name of Federal agency from which assistance is being requested with this application.
10.	Use the Catalog of Federal Domestic Assistance number and title of the program under which assistance is requested.
11.	Enter a brief descriptive title of the project. If more than one program is involved, you should append an explanation on a separate sheet. If appropriate (e.g., construction or real property projects), attach a map showing project location. For preapplications, use a separate sheet to provide a summary description of this project.

Item:	Entry:
12.	List only the largest political entities affected (e.g., State, counties, cities).
13.	Self-explanatory.
14.	List the applicant's Congressional District and any District(s) affected by the program or project.
15.	Amount requested or to be contributed during the first funding/budget period by each contributor. Value of in-kind contributions should be included on appropriate lines as applicable. If the action will result in a dollar change to an existing award, indicate *only* the amount of the change. For decreases, enclose the amounts in parentheses. If both basic and supplemental amounts are included, show breakdown on an attached sheet. For multiple program funding, use totals and show breakdown using same categories as item 15.
16.	Applicants should contact the State Single Point of Contact (SPOC) for Federal Executive Order 12372 to determine whether the application is subject to the State intergovernmental review process.
17.	This question applies to the applicant organization, not the person who signs as the authorized representative. Categories of debt include delinquent audit disallowances, loans and taxes.
18.	To be signed by the authorized representative of the applicant. A copy of the governing body's authorization for you to sign this application as official representative must be on file in the applicant's office. (Certain Federal agencies may require that this authorization be submitted as part of the application.)

ASSURANCES - NON-CONSTRUCTION PROGRAMS

PLEASE DO NOT RETURN YOUR COMPLETED FORM TO THE OFFICE OF MANAGEMENT AND BUDGET. SEND IT TO THE ADDRESS PROVIDED BY THE SPONSORING AGENCY.

NOTE: Certain of these assurances may not be applicable to your project or program. If you have questions, please contact the awarding agency. Further, certain Federal awarding agencies may require applicants to certify to additional assurances. If such is the case, you will be notified.

As the duly authorized representative of the applicant, I certify that the applicant:

1. Has the legal authority to apply for Federal assistance and the institutional, managerial and financial capability (including funds sufficient to pay the non-Federal share of project cost) to ensure proper planning, management and completion of the project described in this application.

2. Will give the awarding agency, the Comptroller General of the United States and, if appropriate, the State, through any authorized representative, access to and the right to examine all records, books, papers, or documents related to the award; and will establish a proper accounting system in accordance with generally accepted accounting standards or agency directives.

3. Will establish safeguards to prohibit employees from using their positions for a purpose that constitutes or presents the appearance of personal or organizational conflict of interest, or personal gain.

4. Will initiate and complete the work within the applicable time frame after receipt of approval of the awarding agency.

5. Will comply with the Intergovernmental Personnel Act of 1970 (42 U.S.C. §§4728-4763) relating to prescribed standards for merit systems for programs funded under one of the 19 statutes or regulations specified in Appendix A of OPM's Standards for a Merit System of Personnel Administration (5 C.F.R. 900, Subpart F).

6. Will comply with all Federal statutes relating to nondiscrimination. These include but are not limited to: (a) Title VI of the Civil Rights Act of 1964 (P.L. 88-352) which prohibits discrimination on the basis of race, color or national origin; (b) Title IX of the Education Amendments of 1972, as amended (20 U.S.C. §§1681-1683, and 1685-1686), which prohibits discrimination on the basis of sex; (c) Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. §794), which prohibits discrimination on the basis of handicaps; (d) the Age Discrimination Act of 1975, as amended (42 U.S.C. §§6101-6107), which prohibits discrimination on the basis of age; (e) the Drug Abuse Office and Treatment Act of 1972 (P.L. 92-255), as amended, relating to nondiscrimination on the basis of drug abuse; (f) the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment and Rehabilitation Act of 1970 (P.L. 91-616), as amended, relating to nondiscrimination on the basis of alcohol abuse or alcoholism; (g) §§523 and 527 of the Public Health Service Act of 1912 (42 U.S.C. §§290 dd-3 and 290 ee 3), as amended, relating to confidentiality of alcohol and drug abuse patient records; (h) Title VIII of the Civil Rights Act of 1968 (42 U.S.C. §§3601 et seq.), as amended, relating to nondiscrimination in the sale, rental or financing of housing; (i) any other nondiscrimination provisions in the specific statute(s) under which application for Federal assistance is being made; and, (j) the requirements of any other nondiscrimination statute(s) which may apply to the application.

7. Will comply, or has already complied, with the requirements of Titles II and III of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (P.L. 91-646) which provide for fair and equitable treatment of persons displaced or whose property is acquired as a result of Federal or federally-assisted programs. These requirements apply to all interests in real property acquired for project purposes regardless of Federal participation in purchases.

8. Will comply, as applicable, with provisions of the Hatch Act (5 U.S.C. §§1501-1508 and 7324-7328) which limit the political activities of employees whose principal employment activities are funded in whole or in part with Federal funds.

9. Will comply, as applicable, with the provisions of the Davis-Bacon Act (40 U.S.C. §§276a to 276a-7), the Copeland Act (40 U.S.C. §276c and 18 U.S.C. §874), and the Contract Work Hours and Safety Standards Act (40 U.S.C. §§327-333), regarding labor standards for federally-assisted construction subagreements.

10. Will comply, if applicable, with flood insurance purchase requirements of Section 102(a) of the Flood Disaster Protection Act of 1973 (P.L. 93-234) which requires recipients in a special flood hazard area to participate in the program and to purchase flood insurance if the total cost of insurable construction and acquisition is $10,000 or more.

11. Will comply with environmental standards which may be prescribed pursuant to the following: (a) institution of environmental quality control measures under the National Environmental Policy Act of 1969 (P.L. 91-190) and Executive Order (EO) 11514; (b) notification of violating facilities pursuant to EO 11738; (c) protection of wetlands pursuant to EO 11990; (d) evaluation of flood hazards in floodplains in accordance with EO 11988; (e) assurance of project consistency with the approved State management program developed under the Coastal Zone Management Act of 1972 (16 U.S.C. §§1451 et seq.); (f) conformity of Federal actions to State (Clean Air) Implementation Plans under Section 176(c) of the Clean Air Act of 1955, as amended (42 U.S.C. §§7401 et seq.); (g) protection of underground sources of drinking water under the Safe Drinking Water Act of 1974, as amended (P.L. 93-523); and, (h) protection of endangered species under the Endangered Species Act of 1973, as amended (P.L. 93-205).

12. Will comply with the Wild and Scenic Rivers Act of 1968 (16 U.S.C. §§1271 et seq.) related to protecting components or potential components of the national wild and scenic rivers system.

13. Will assist the awarding agency in assuring compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (16 U.S.C. §470), EO 11593 (identification and protection of historic properties), and the Archaeological and Historic Preservation Act of 1974 (16 U.S.C. §§469a-1 et seq.).

14. Will comply with P.L. 93-348 regarding the protection of human subjects involved in research, development, and related activities supported by this award of assistance.

15. Will comply with the Laboratory Animal Welfare Act of 1966 (P.L. 89-544, as amended, 7 U.S.C. §§2131 et seq.) pertaining to the care, handling, and treatment of warm blooded animals held for research, teaching, or other activities supported by this award of assistance.

16. Will comply with the Lead-Based Paint Poisoning Prevention Act (42 U.S.C. §§4801 et seq.) which prohibits the use of lead-based paint in construction or rehabilitation of residence structures.

17. Will cause to be performed the required financial and compliance audits in accordance with the Single Audit Act Amendments of 1996 and OMB Circular No. A-133, "Audits of States, Local Governments, and Non-Profit Organizations."

18. Will comply with all applicable requirements of all other Federal laws, executive orders, regulations, and policies governing this program.

SIGNATURE OF AUTHORIZED CERTIFYING OFFICIAL	TITLE
[signature]	President, Board of Directors
APPLICANT ORGANIZATION	DATE SUBMITTED
Western Shasta Resource Conservation District	May 12, 2000

OMB Approval No. 0348-0044

BUDGET INFORMATION - Non-Construction Programs

SECTION A - BUDGET SUMMARY

Grant Program Function or Activity (a)	Catalog of Federal Domestic Assistance Number (b)	Estimated Unobligated Funds		New or Revised Budget		
		Federal (c)	Non-Federal (d)	Federal (e)	Non-Federal (f)	Total (g)
1 Clear Creek Floodway Restoration		$	$	$ 3,564,325	$	$ 3,564,325
2						
3.						
4.						
5. Totals		$	$	$ 3,564,325	$	$ 3,564,325

SECTION B - BUDGET CATEGORIES

6. Object Class Categories	GRANT PROGRAM, FUNCTION OR ACTIVITY (1)	(2)	(3)	(4)	Total (5)
a. Personnel	$ 157,695	$	$	$	$ 157,695
b. Fringe Benefits	47,305				47,305
c. Travel	9,375				9,375
d. Equipment	7,500				7,500
e. Supplies	53,125				53,125
f. Contractual	2,824,413				2,824,413
g. Construction					
h. Other					
i. Total Direct Charges *(sum of 6a-6h)*	3,099,413				3,099,413
j. Indirect Charges	464,912				464,912
k. TOTALS *(sum of 6i and 6j)*	$ 3,564,325	$	$	$	$ 3,564,325
7. Program Income	$	$	$	$	$

SECTION C - NON-FEDERAL RESOURCES

(a) Grant Program	(b) Applicant	(c) State	(d) Other Sources	(e) TOTALS
8.	$	$	$	$
9.				
10.				
11.				
12. TOTAL *(sum of lines 8-11)*	$	$	$	$

SECTION D - FORECASTED CASH NEEDS

	Total for 1st Year	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
13. Federal	$ 3,023,825	$55,848	$ 63,349	$2,807,654	$96,974
14. Non-Federal					
15. TOTAL *(sum of lines 13 and 14)*	$ 3,023,825	$55,848	$ 63,349	$2,807,654	$ 96,974

SECTION E - BUDGET ESTIMATES OF FEDERAL FUNDS NEEDED FOR BALANCE OF THE PROJECT

(a) Grant Program	FUTURE FUNDING PERIODS (Years)			
	(b) First	(c) Second	(d) Third	(e) Fourth
16.	$339,250	$ 201,250	$	$
17.				
18.				
19.				
20. TOTAL *(sum of lines 16-19)*	$339,250	$ 201,250	$	$

SECTION F - OTHER BUDGET INFORMATION

21. Direct Charges:	22. Indirect Charges:
23. Remarks:	

Western Shasta Resource Conservation District

Lower Clear Creek Floodway Restoration Project Phases 3 & 4

APPENDIX

WSRCD PROJECTS IMPLEMENTED UNDER PROJECT MANAGER, JEFF SOUZA

		Western Shasta Resource Conservation District	2-May-00		
		PROJECT LIST			
Project #	*Grantor*	*Project Name*	*Grant Amount*	*Opened*	*Ends*
26-5	BLM	Lower Clear Ck Erosion Control Project	37,562	8/26/96	9/30/00
26-7A	BOR	Lower Clear Ck Shasta Dam Display	2,304	9/27/99	9/30/00
26-7B	BOR	Lower Clear Ck CRMP Organization	24,346	11/30/99	11/30/01
26-9	BOR	Lower Clear Ck Erosion Inventory	197,752	3/7/97	9/30/00
26-13	BOR	Lower Clear Ck Spawning Gravel	408,000	7/29/97	9/30/00
26-19	USFWS	Lower Clear Ck Lower Channel Morphology	340,000	3/1/98	9/30/00
26-20	BLM	Lower Clear Ck Wetland Mitigation	30,000	9/15/98	9/30/00
26-21	CALFED	Lower Clear Ck Floodway Restoration	3,559,596	4/1/99	9/30/01
26-22	BLM	Lower Clear Ck Mule Mtn./MuleTwn Fuel Break	30,000	4/12/99	9/30/00
26-23A	CDF	Lower Clear Ck Igo Fuel Strategic Plan	7,667	12/29/99	9/30/00
26-23B	CDF	Lower Clear Ck Igo Fire Safe Project	9,033	12/29/99	9/30/00
26-24A	BLM	Igo Strategic Fuel Plan	3,144	3/13/00	9/30/00
26-24B	BLM	Igo Fuel Education	4,630	3/13/00	9/30/00
26-25	BLM	Web Site Expansion	2,454	3/13/00	9/30/00
26-26	BLM	A.M. Wetlands	82,025	3/15/00	9/30/00
26-27	CALFED	Clear Creek Prescription	256,260	4/28/00	4/28/02
27-00	USF&W	Middle Creek Swasey Sediment Dam	20,000	3/15/97	12/15/00
27-3	DOC	Middle Creek Rock Creek Fuel Break	11,000	5/1/99	6/30/00
27-4A	CDF	Shasta West Fuel Break	14,743	4/10/00	3/31/02
27-4B	CDF	Shasta West Fuel Break Maintenance	7,257	4/10/00	3/31/02
27-4C	CDF	Shasta West Education Outreach	17,527	4/10/00	3/31/02
30	METRO	Battle Creek CRMP& Strategy	50,000	5/1/97	3/31/00
30-1	USF&W	Battle Creek CRMP& Stragegy	50,000	3/15/97	12/15/00
30-1A	USF&W	Battle Creek Education	10,000	3/15/97	12/16/00
30-4	USF&W	Battle Creek Education	28,733	9/1/99	12/15/01
32-1A	USFS	Upper Clear Ck Watershed Analysis	57,500	2/13/98	9/30/00
32-1B	USFS	Upper Clear Ck Erosion Control	48,000	1/29/98	9/30/00
32-3	Cantara	Upper Clear Ck Watershed Brochure	1,830	12/15/99	8/31/00
		Subtotal	5,311,363		
		Awarded - Contracts in Process			
	Packard Fdn	Cow Creek Watershed Assessment	44,465		
	BLM	Task Orders Throughout Clear Creek	300,000		
	SWRCB	Cow Creek Watershed Assessment	69,964		
	NRCS	Ranch Water Quality Workshop Followup Program	6,791		
	USFWS	Jobs in the Woods	243,250		
		Subtotal	664,470		
		CLOSED IN 1999-2000			
26-3	USF&W	Lower Clear Ck Jobs in the Woods	100,000		
26-6	NRCS	Lower Clear Ck CRMP	10,000		
26-7	BOR	Lower Clear Ck CRMP Organization	55,700		
26-8A&B	BLM	Lower Clear Ck Fuel Veg Inventory	124,220		
26-16	NRCS	Lower Clear Ck EQIP Education Plan	4,000		
26-18	BLM	Lower Clear Ck Cleanup	28,484		
27-2	CDF	Middle Ck Muletown Road Fuelbreak	14,950		
30-3	CDF	Shingletown Fuel Break	14,996		
32-3	Cantara	Upper Clear Ck Water Rights Seminars	2,944		
		Subtotal	355,294		
		CLOSED IN 1998-99			
26-10	BOR	LCC Fuel Inventory	15,111		
26-11	BLM	LCC Engineering Survey	34,262		
26-12	BOR	LCC Photogrametry Survey	39,087		
26-14	BLM	LCC Education and Cleanup	44,536		
27-01	DFG	MC Spawning Gravel	3,835		
		Subtotal	136,831		
		CLOSED IN 1997-98			
26-01	BLM	LCC Watershed Analysis	50,928		
26-02	BLM	LCC Gravel Injection	70,000		
		Subtotal	120,928		

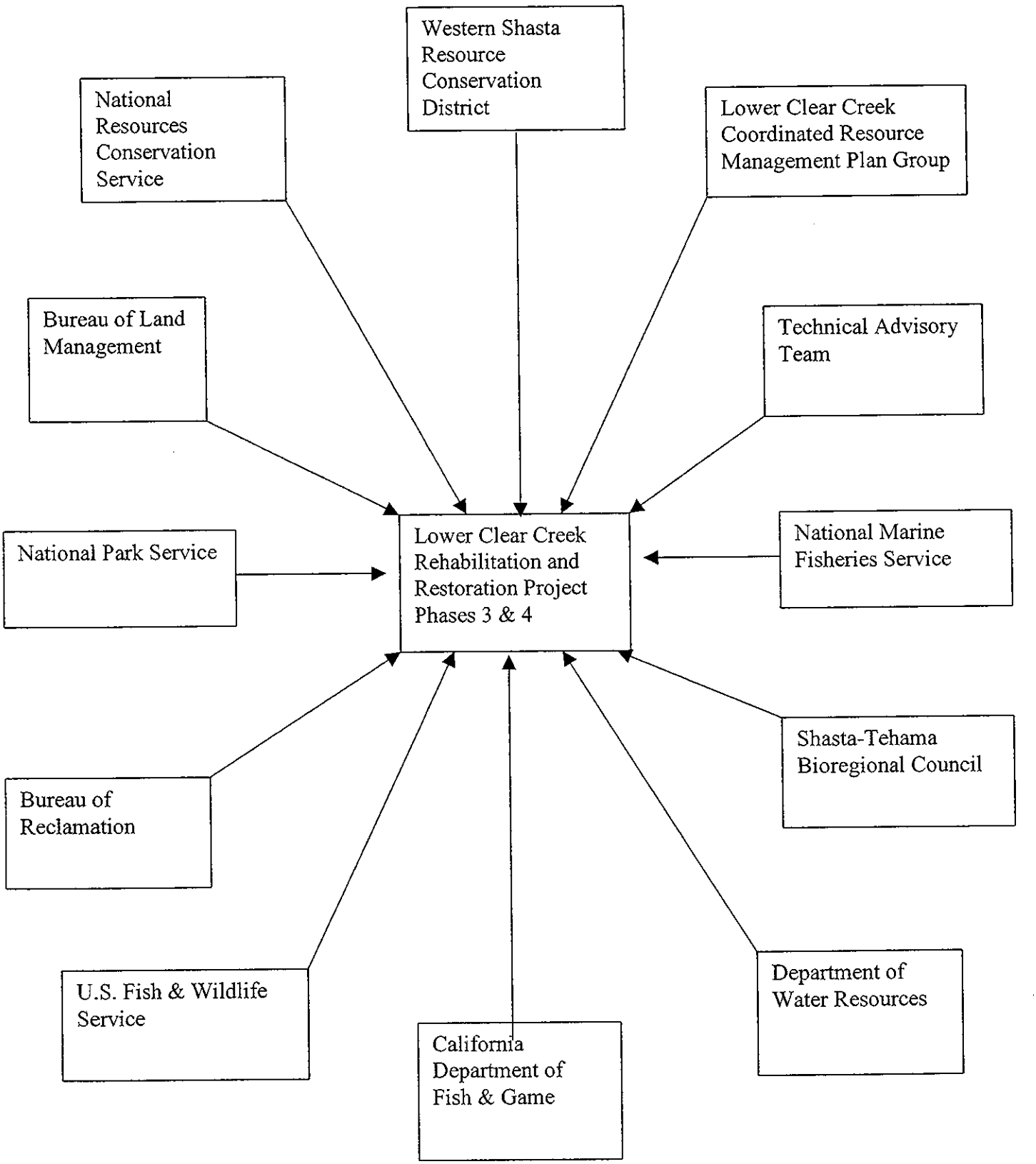
Western Shasta Resource Conservation District

Lower Clear Creek Floodway Restoration Project Phases 3 & 4

APPENDIX

SCIENTIFIC CONTRIBUTORS TO PHASES 3 & 4

SCIENTIFIC CONTRIBUTORS TO THE LOWER CLEAR CREEK RESTORATION PROJECT



SCIENTIFIC CONTRIBUTORS TO PHASES 3 AND 4 NARRATIVE

Bureau of Reclamation (BOR) – Funds the work through the CVPIA. They review the various project proposals and either fund them directly or work through consultants as necessary to achieve the project goals. BOR helps in the review and implementation of all phases of the proposed projects within the Watershed Boundary and, along with the Fish and Wildlife Service, are the facilitators for the project implementation.

Fish and Wildlife Service (FWS) – Funds the work through the CVPIA. They do fish studies in Clear Creek from the confluence with the Sacramento River to the base of Whiskeytown Dam. FWS reviews and assists in the design and implementation of all projects within the watershed, but are primarily involved with fish habitat improvements directly in the creek.

Bureau of Land Management (BLM) – The primary landowner for any work done in the Clear Creek Channel. They have and are acquiring land to insure that all channel restoration work is done on federal property. BLM funds projects and reviews and approves the designs as necessary, since they will be the agency to manage the projects when restoration work is completed.

Natural Resources Conservation Service (NRCS) – This agency works with the Clear Creek Team and works closely with the Western Shasta Resource Conservation District. NRCS provides the District with engineering and other technical support to enable the District to accomplish the project goals.

California Department of Fish and Game (CDF) – This agency plays a very critical role in the project implementation. DFG is the owner of Saeltzer Dam and has extensive historical studies of Clear Creek fish migration and the various methods that have been tried in the past to improve the fish passage situation. DFG also reviews the proposed project designs and contributes ideas and recommendations and is also one of the permitting agencies.

Department of Water Resources (DWR) – This agency reviews and makes recommendations on all proposed projects. DWR has an extensive background with projects they have implemented on this creek.

National Marine Fisheries Service (NMFS) – This agency reviews and makes recommendations on the proposed projects within the creek corridor and is one of the many permitting agencies.

National Park Service (NPS) – This agency manages large acreage within the watershed, which includes Whiskeytown Dam south. NPS participates in the overall review of the proposed project.

Restoration Technical Team – This team consists of local agency representatives that meet on short notice to make necessary decisions on the implementation of ongoing projects.

From time to time private consultants specializing in specific areas are brought in to work with the team, as well as stakeholder representatives from power, water, commercial recreation and commercial fishing interests.

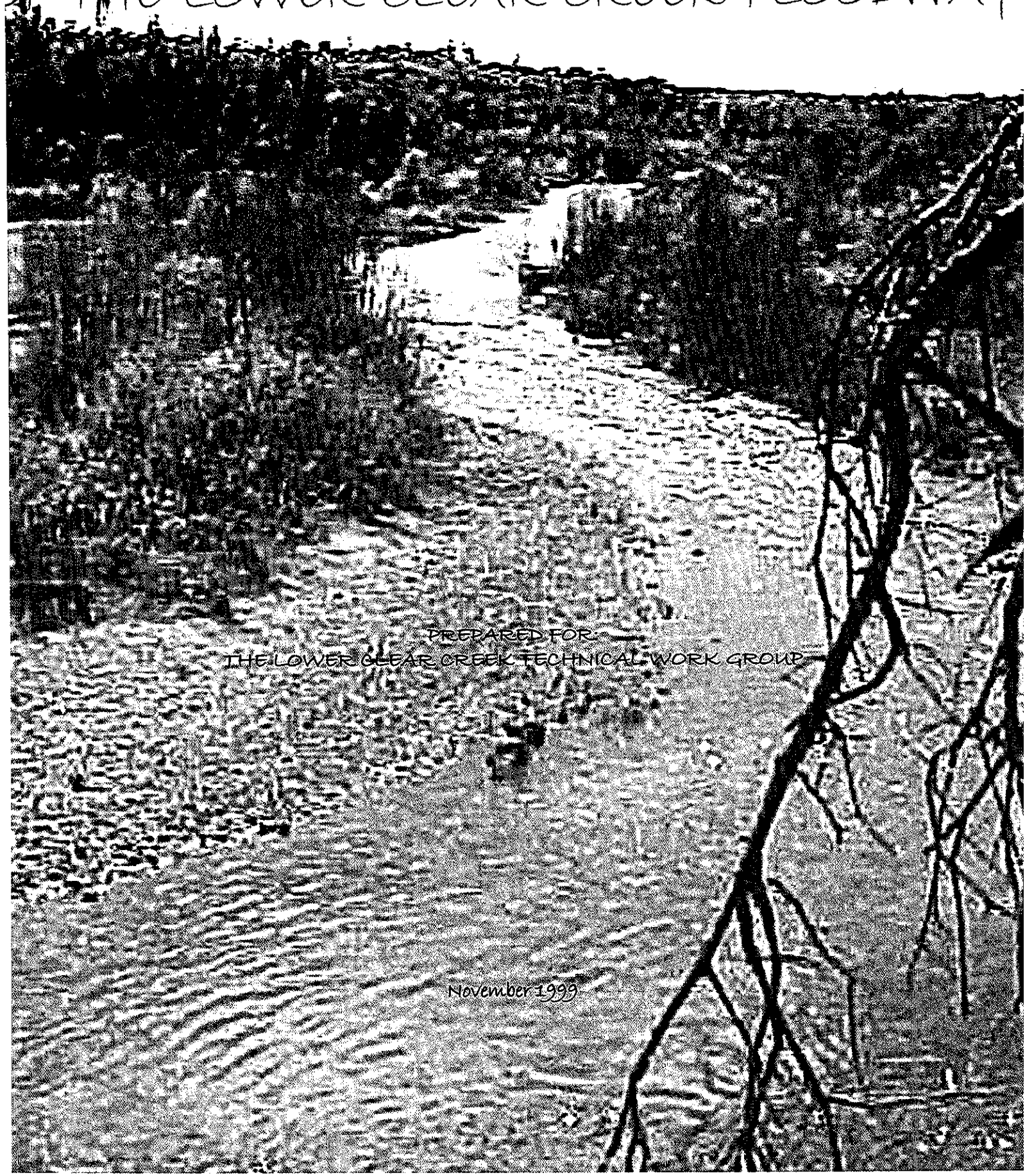
Western Shasta Resource Conservation District

Lower Clear Creek Floodway Restoration Project Phases 3 & 4

APPENDIX

BOOKLET ON CONCEPTUAL PLAN

CONCEPTUAL PLAN FOR RESTORATION OF THE LOWER CLEAR CREEK FLOODWAY

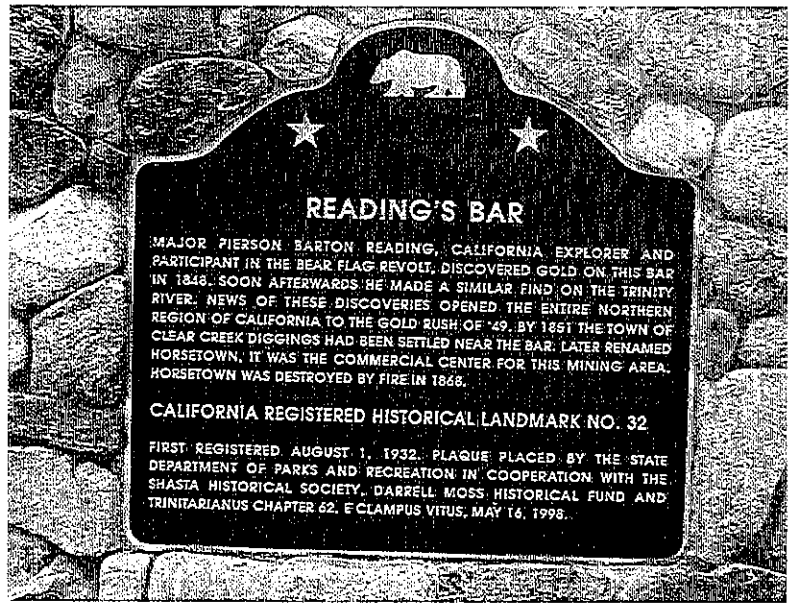


PREPARED FOR:
THE LOWER CLEAR CREEK TECHNICAL WORK GROUP

November 1999

BACKGROUND

Land use, beginning with the discovery of gold at Reading Bar in 1848, and continuing today with gravel mining and flow/sediment regulation at Whiskeytown Dam, has profoundly changed the landscape of the lower Clear Creek watershed. These land uses, while providing tremendous benefits to society, have unfortunately caused severe damage to biological habitats provided by the creek. Recent and continuing restoration efforts are attempting to reverse these negative impacts on the creek by restoring the Clear Creek watershed. Restoration activities include adding spawning gravel, removing fish barriers, controlling erosion, reducing fuel loads and improving streamflows. The following summary describes focused efforts that will be undertaken in the next several years to restore two large sections of the lower Clear Creek floodway. The Proposed Action will complement future restoration actions that are necessary to recreate a natural stream channel and floodplain throughout the lower sections of the Creek



AGENCY AND STAKEHOLDER PARTICIPATION

The Lower Clear Creek Channel Restoration Team is:
Western Shasta Resource Conservation District (WSRCD)
California Department of Fish and Game (CDFG)
California Department of Water Resources (DWR)
U.S. Bureau of Reclamation (USBR)
U.S. Fish and Wildlife Service (USFWS)
Bureau of Land Management (BLM)
Natural Resources Conservation Service (NRCS)
National Park Service (NPS)
Western Area Power Administration (WAPA)
Northern California Power Administration (NCPA)

Support for the project is also provided by:
Central Valley Water Users Association
Shasta County
Shasta College
Clear Creek Coordinated Resource Management and Planning Group
Horsetown Clear Creek Preserve.

RESTORATION FUNDING SOURCES

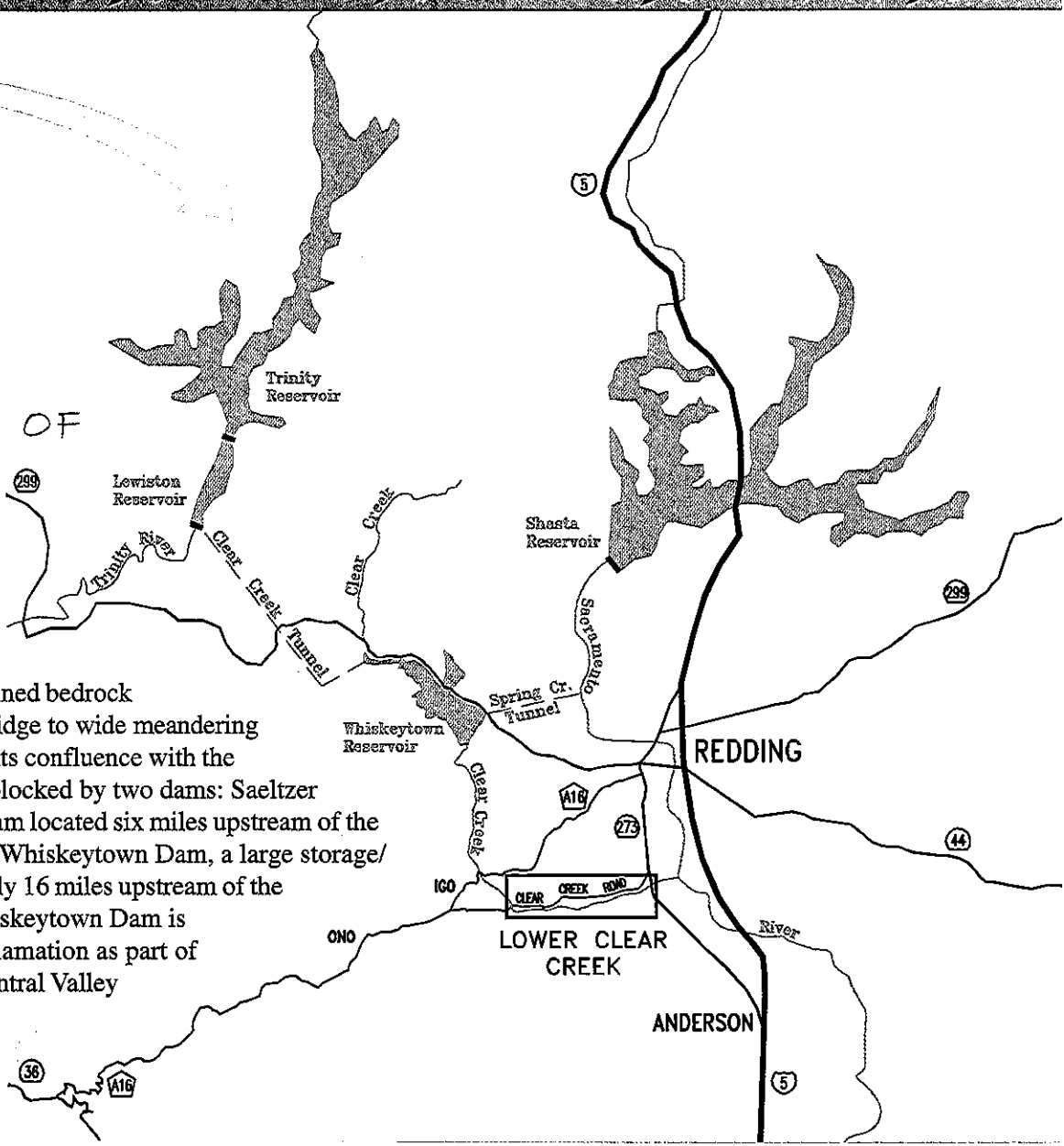
In response to declining fishery populations Congress passed the Central Valley Project Improvement Act (CVPIA). One of the primary purposes of the CVPIA is to protect, restore and enhance fish, wildlife and associated habitats in the Central Valley and Trinity River Basins of California. CVPIA targets actions necessary to improve salmonid populations in Clear Creek and provided funding to develop plans and conduct environmental evaluations necessary to implement this restoration effort.

The mission of the CALFED Bay-Delta Program, which is providing most of the funding for this project, is to develop a long-term comprehensive plan that will restore ecosystem health and improve water management for beneficial uses on the Bay-Delta system. The Lower Clear Creek Floodway Restoration Project is consistent with the ecological process objectives of the CALFED Bay-Delta Program and, in 1998, the Western Shasta Resource Conservation District was awarded a CALFED grant to initiate construction actions necessary to restore the lower Clear Creek floodway as described in this conceptual plan.

BLM's Redding Resource Area Office is also funding restoration efforts with in the lower Clear Creek Floodway. BLM funds target acquisition of important parcels in the floodway and restoration of lands degraded by mining activities through creation of additional wetlands.

GEOGRAPHY OF CLEAR CREEK

Clear Creek originates on the eastern side of the Trinity Alps and flows south to its eventual confluence with the Sacramento River. Clear Creek channel morphology varies from steep confined bedrock reaches above Clear Creek Road bridge to wide meandering alluvial reaches from the bridge to its confluence with the Sacramento River. Clear Creek is blocked by two dams: Saeltzer Dam, a small irrigation diversion dam located six miles upstream of the Sacramento River confluence, and Whiskeytown Dam, a large storage/ diversion dam located approximately 16 miles upstream of the Sacramento River confluence. Whiskeytown Dam is operated by the US Bureau of Reclamation as part of the Trinity River Division of the Central Valley Project, and is responsible for regulating streamflows to lower Clear Creek.



HISTORICAL NATURAL CONDITIONS ON CLEAR CREEK

The lower eight miles of Clear Creek, after it exits the canyon, are predominately alluvial, meaning that the bed and banks of the channel are formed of sand and gravel rather than bedrock. Alluvial channels similar to Clear Creek were historically very dynamic, due in large part to highly variable streamflows. Using pre-Whiskeytown Dam streamflows as an indicator of historic unimpaired flows, some key stream characteristics can be highlighted:

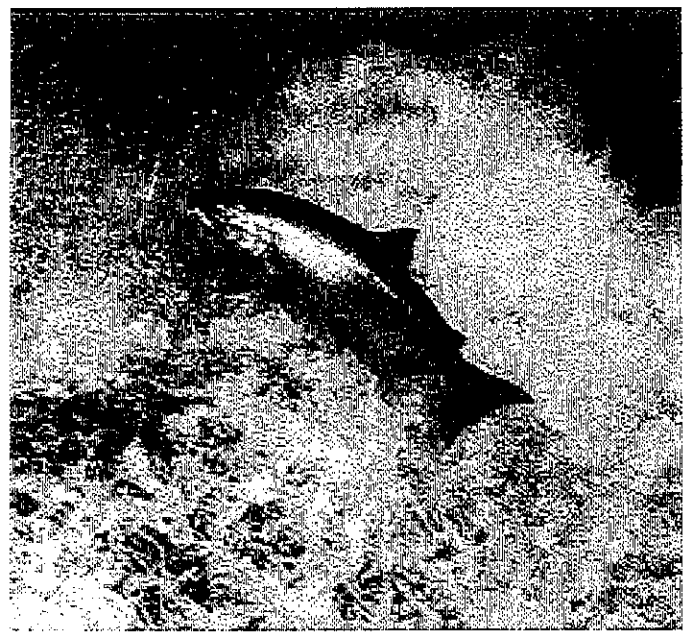
- **Summer baseflows**: Flows in lower Clear Creek were typically less than 50 ft^3/sec, and resulting high water temperatures forced remaining salmonids to seek refuge in colder tributary streams and headwater sections located further up the creek. Most juvenile chinook salmon migrate downstream to the delta and ocean environment in the spring before higher water temperatures and summer low flows occur.

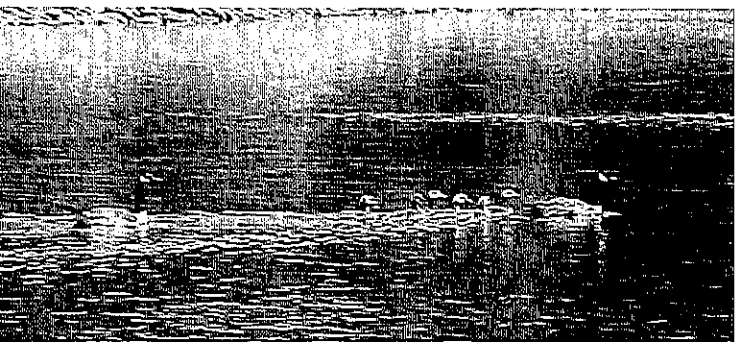
- **Fall/winter floods**: Small to extremely large floods resulting from rainfall or rain-on-snow events provided flows for adult salmonids to migrate into and up Clear Creek. Fall/winter baseflows between storm events provided flows for adult spawning and fry rearing. The moderate and large fall/winter storm events (4,000 to 10,000 ft^3/sec) were responsible for mobilizing gravels, depositing gravels, creating floodplains, and causing the channel to migrate across the valley bottom. During extremely large flood events (10,000 to 30,000 ft^3/sec), the channel often jumped across the valley bottom, usually reshaping the channel and stands of riparian vegetation within the valley walls.

- **Snowmelt peak**: Because most of the Clear Creek watershed is below the typical snowline elevation (4,000 ft), snowmelt peaks were less than 2,000 ft^3/sec. These flows provided adequate flows and water temperatures for juvenile salmonid rearing habitat. Juvenile outmigration to the ocean also coincided with snowmelt runoff in Clear Creek and the Sacramento River.

IMPORTANCE OF CLEAR CREEK TO SALMON AND STEELHEAD TROUT

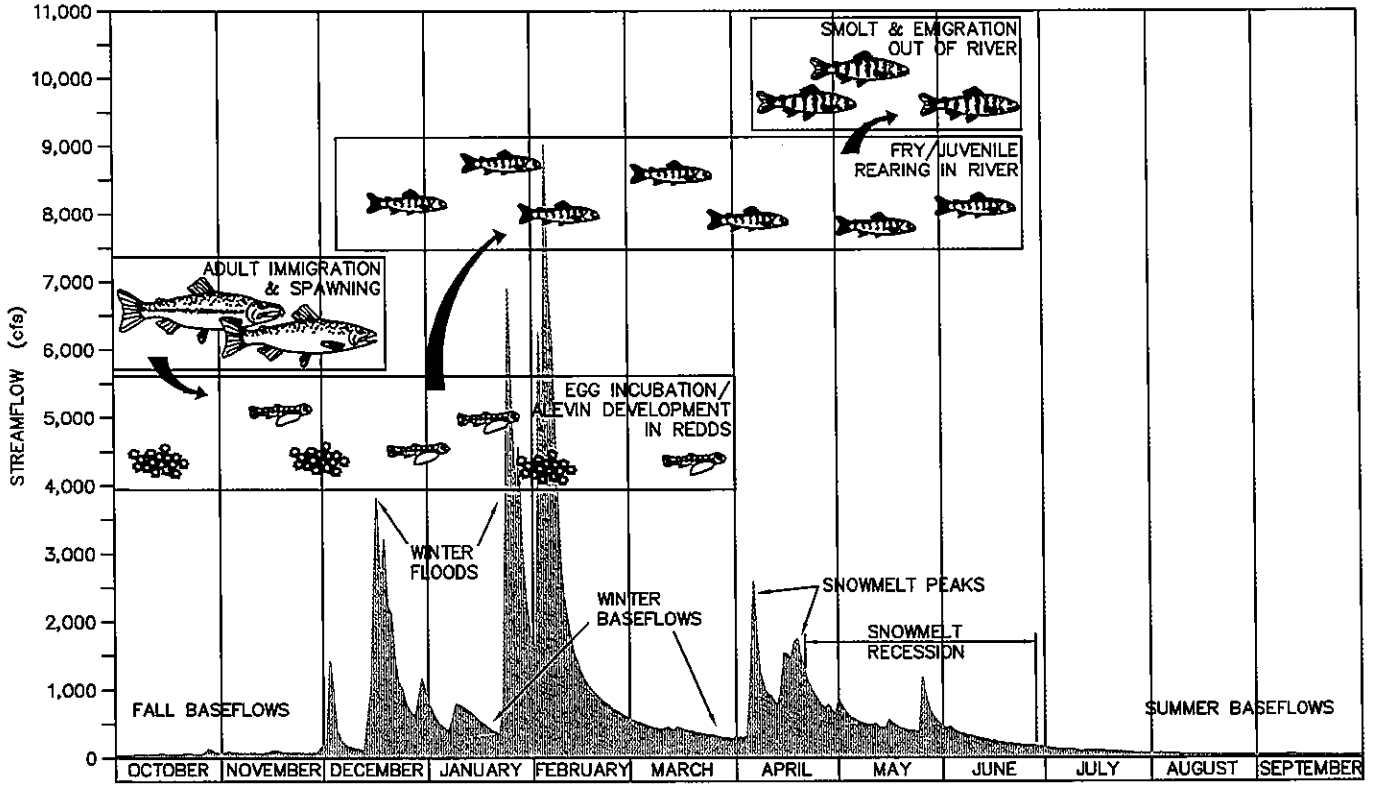
Clear Creek is the first large tributary downstream of Shasta Dam, making it an important stream for salmon and steelhead production. Historically, several distinct runs of chinook salmon and steelhead trout inhabited Clear Creek. These species are anadromous, meaning they spawn in fresh water, migrate to the sea as juveniles, grow large and mature at sea before returning to their natal streams to spawn. Chinook salmon typically spawn in the fall, depositing eggs in gravel substrates in run and riffle habitats. The female digs a pit (redd) in the gravel, and as she deposits her eggs, the male fertilizes them. The eggs incubate and develop into fry under the gravel, and emerge in the late winter and spring. Young salmon rear in slow edgewater and backwater habitats during the spring, then migrate downstream with snow melt runoff to the sea in late spring. Steelhead differ from chinook salmon in that they typically spawn in winter and spring and young steelhead spend between one to four years rearing in freshwater before migrating downstream to the sea usually in the early spring. The proposed channel restoration project described in this summary acknowledges the importance of these natural environmental conditions to salmonid production and incorporates these conditions into restoration efforts.

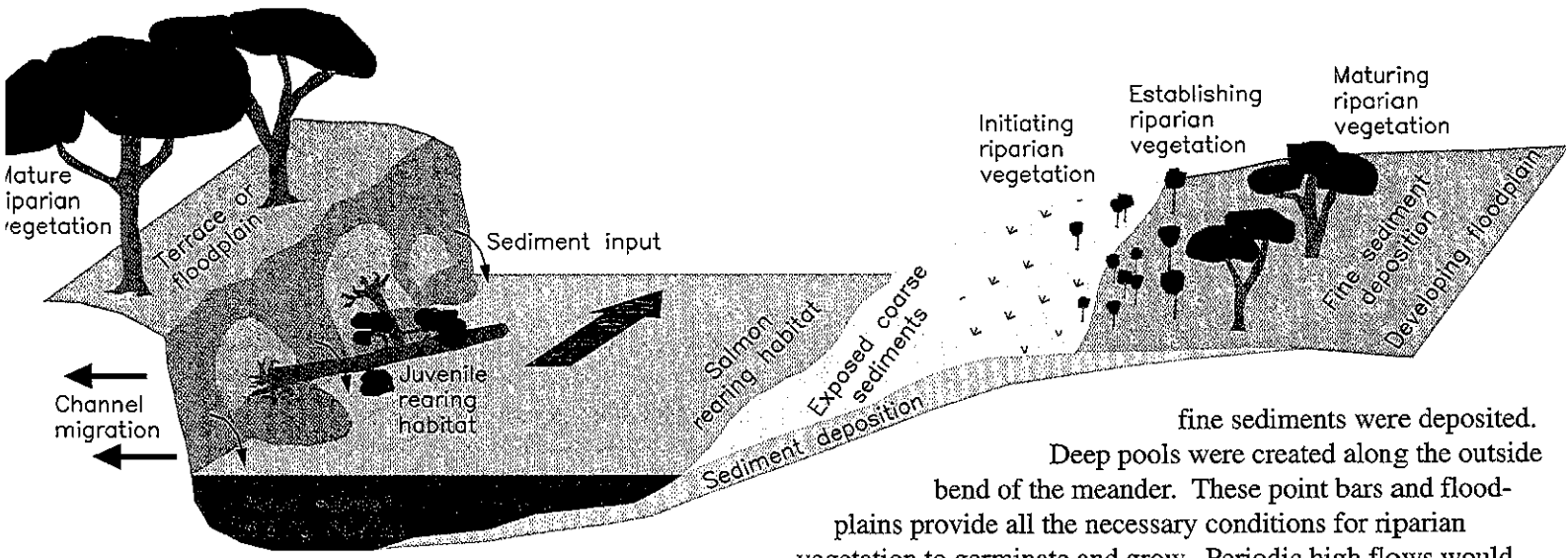




RIPARIAN WILDLIFE COMMUNITIES

Restoration of functional, frequently flooded riparian habitats along lower Clear Creek will provide a greater diversity of riparian habitat types and stages. Conversion of marginal upland habitats that are currently dominated by tailing piles to large diverse wetland habitats will greatly enhance wildlife habitat values. Increased habitat diversity will in turn provide additional micro-habitats that are used by many wildlife species for all, or portions of their life stages.





Winter storms were very important for creating and maintaining a healthy Clear Creek floodway. These flows transported sediments (cobbles, gravel, sand, silts) from the upper watershed downstream, much of which was deposited in the valley reaches downstream of Clear Creek Road bridge. This pattern of sediment transport and deposition created alternating bars and floodplains. The creation of gravel and cobble bars forced the creek channel to meander back and forth across the valley floor. During high flows the creek eroded banks on the outside bends of the meander and deposited sediments on the inside curve of the creek forming bars. Over time these point bars slowly evolved into floodplains as fine sediments were deposited. Deep pools were created along the outside bend of the meander. These point bars and floodplains provide all the necessary conditions for riparian vegetation to germinate and grow. Periodic high flows would scour and kill some patches of riparian vegetation, while enhancing others by placing new soil deposits along the floodplain. This pattern of damage and regrowth resulted in diverse stands of riparian vegetation, and created a wide range of terrestrial and aquatic habitats important for native fish and wildlife species.

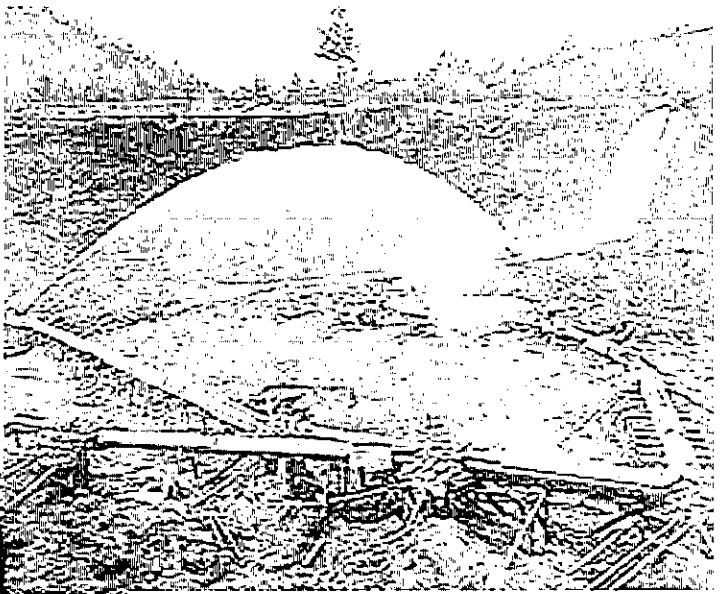
In short, the natural pattern of high flows, low flows, and sediment supply combined to create a dynamic and diverse lower Clear Creek floodway, which in turn supported substantial populations of salmon, steelhead and other native wildlife species. Human induced changes to Clear Creek, beginning in 1848 with the discovery of gold at Reading Bar, initiated substantial changes to the floodway, leading to our present need to restore degraded reaches.

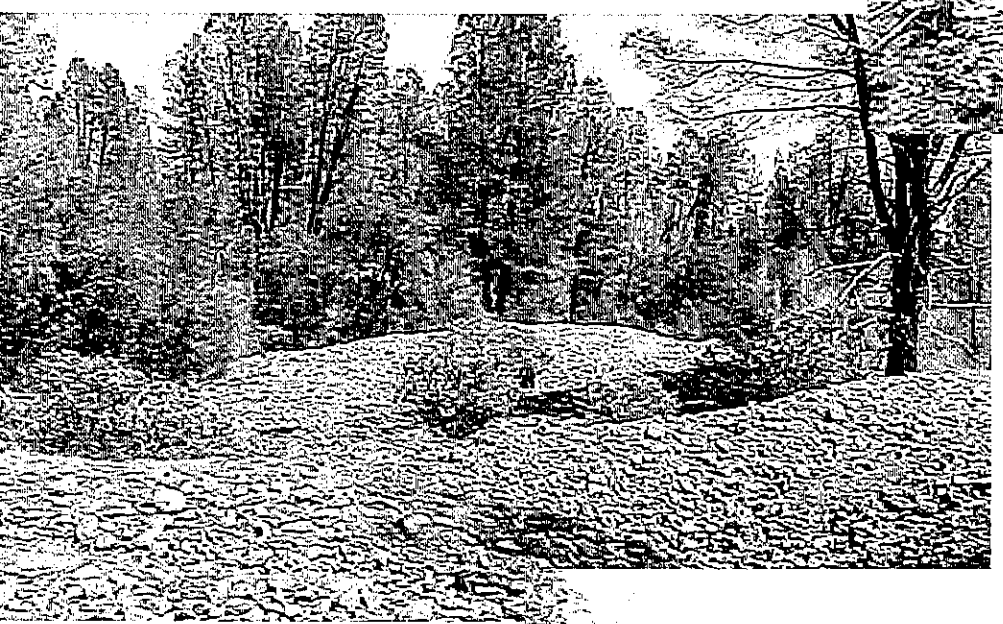
HISTORIC USE IMPACTS

Recalling that the interaction of streamflows and sediment create and maintain a healthy Clear Creek floodway, any changes to the balance of streamflow and sediment induce a change to the floodway, and many of the native species that inhabit it. Some of the more important changes are described below.

1848 Gold Discovery

Gold was discovered along the banks of Clear Creek in 1848, and was the first of many actions that lead to the decline of salmon and steelhead populations. Placer mining altered the stream channel and increased erosion of sediments into the channel degrading salmon and steelhead habitats. Once placer miners exhausted surface gold deposits, several hydraulic cannons were brought into the watershed to gain access to subsurface gold deposits along the stream banks and hillsides. The devastation caused by these hydraulic cannons on the landscape prompted passage of California's Anti-Debris Act in 1883 outlawing the use of hydraulic cannons.



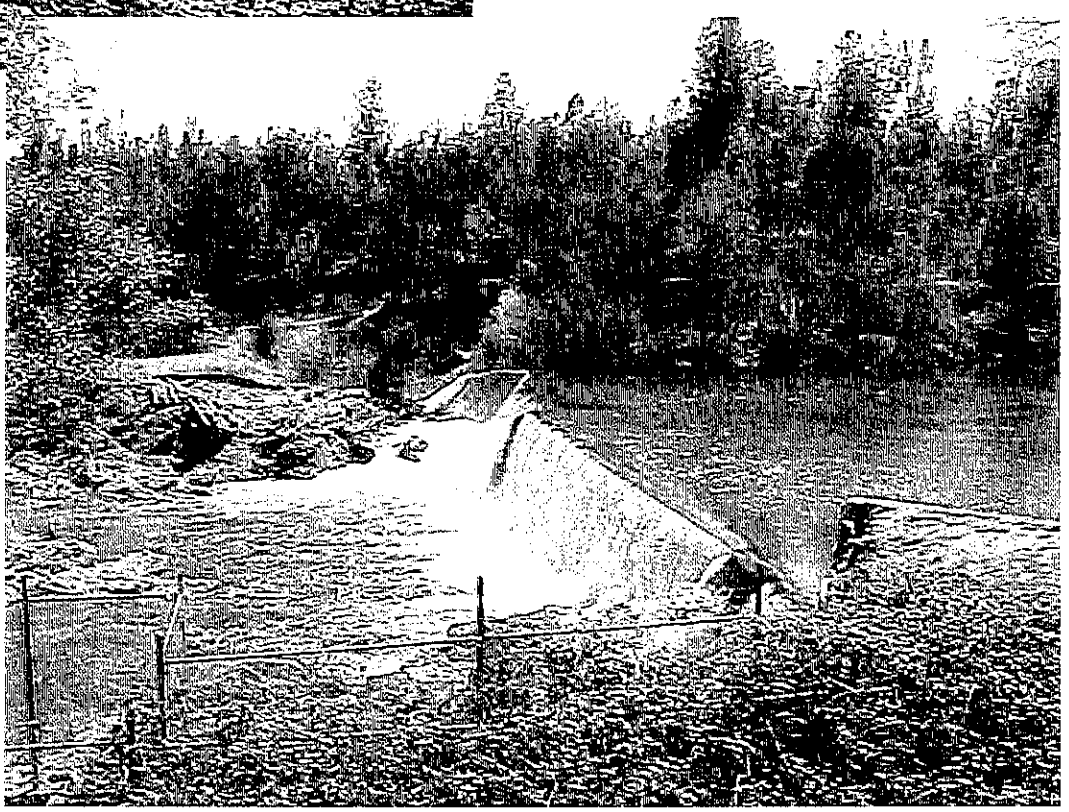


Large Dredging in the Early 1900's

Large floating dredges began working the lower reaches of the creek channel and tributary streams during the early years of the twentieth century. Operation of these dredges throughout the lower reaches of the creek caused massive alterations to the natural morphology of the stream channel and ecosystem further degrading salmon and steelhead habitats.

Saeltzer Dam, 1903 to Present

Saeltzer Dam was first constructed in 1903 by the Townsend Flat Water Ditch Company to provide water for agriculture, livestock, and land development businesses in the area. The dam, located about 6 miles upstream of the Sacramento River creates a migration barrier for salmon and steelhead eliminating access to valuable spawning and rearing habitat. Several attempts have been made to provide fish passage over the dam without success. In response, both the Central Valley Project Improvement Act and the CALFED Bay-Delta Program have recognized the need to remedy the fish passage problem and efforts are underway to provide a fish friendly solution.



Gravel Extraction, 1950s through 1978

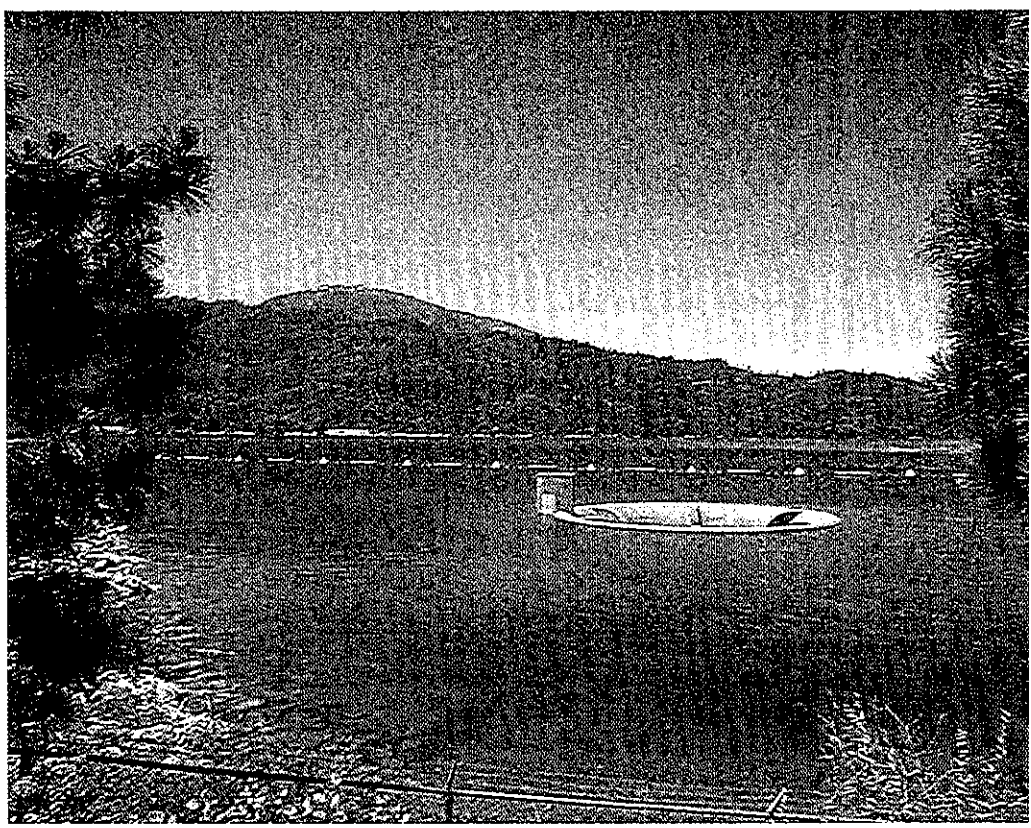
Gravel extraction operations began removing tailing piles and gravel accumulations within the lower Clear Creek floodway during the 1950's. Removal of large quantities of alluvial material (gravel, cobble and sand) has seriously degraded the natural functioning condition of the stream channel and floodplain. The combination of sediment reduction from upstream dams and instream gravel extraction has lowered the elevation of the creek to the point where much of the channel bottom rests on clay hardpan or bedrock. Gravel extraction also removed floodplains, created braided channels, and left several large open pits within the channel and floodway. Fry and juvenile salmon become trapped in these open off channel pits during periods of fluctuating flow which are common during the late winter and spring rearing period. The conversion of the bed from gravel to clay hardpan also reduced the quality and area of spawning and food producing habitats within the stream channel. The area most impacted by these activities is located three miles downstream of Saeltzer Dam and the intent of this restoration project is to remedy the impacts of gravel extraction. Moreover, this restoration project is designed to remediate many of the other human land-use impacts.

Project Site 1952

Project Site 1980

Whiskeytown Unit of the Trinity River Division, 1963 to Present

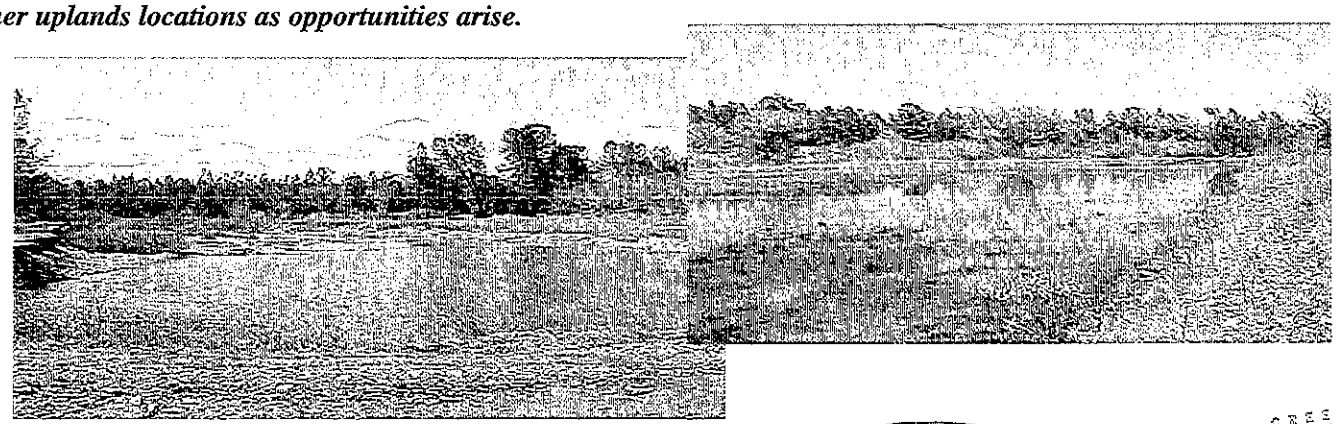
The Trinity River Division (TRD) of the Central Valley Project was authorized in 1955 to increase water supplies available for irrigation and other beneficial uses in the Central Valley. Whiskeytown Dam serves to capture Clear Creek flows and water diversions from the Trinity River through the Clear Creek Tunnel. Inflows to Whiskeytown Dam are diverted to the Sacramento River at Keswick Dam through the Spring Creek Tunnel. Regulated flow releases combined with the elimination of sediment sources upstream further impacted available fishery habitat in lower Clear Creek by altering the natural fluvial processes that are critical to maintaining favorable habitat conditions. In recent years the Bureau of Reclamation, working cooperatively with the U.S. Fish and Wildlife Service, National Marine Fisheries Service and California Department of Fish and Game, has provided additional flow releases to improve habitat conditions for salmon and steelhead.

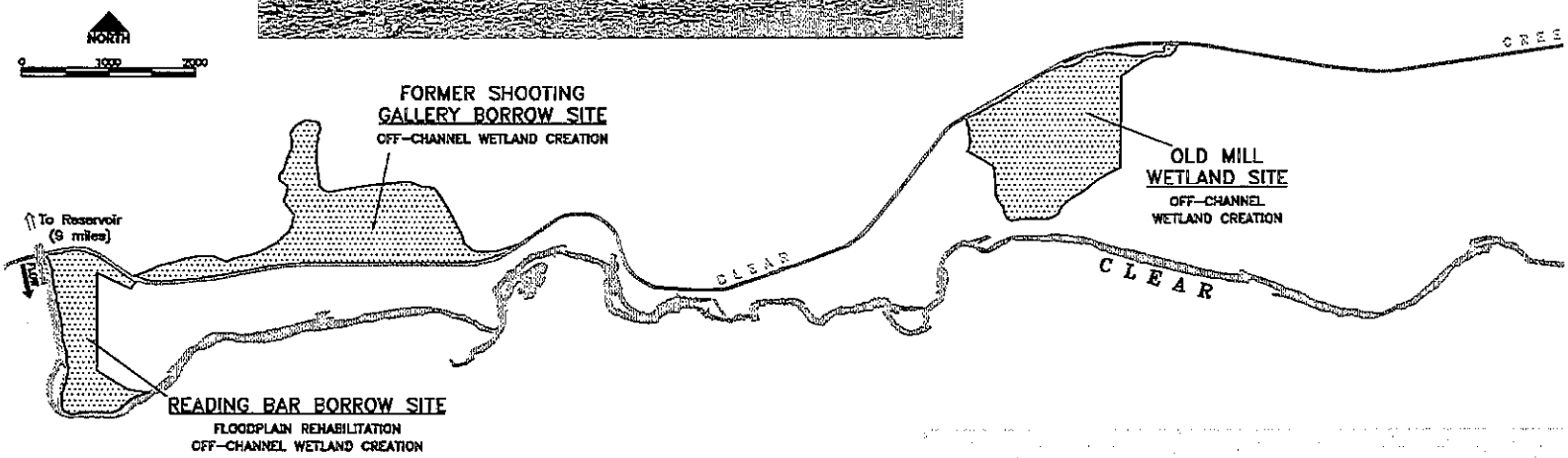


LOWER CLEAR CREEK FLOODWAY RESTORATION PROJECT OBJECTIVES

The goal of the Lower Clear Creek Floodway Restoration Project is to restore floodway function and morphology to two reaches of stream that have been severely degraded by gravel extraction and gold dredger mining. At the gravel extraction site (Project site), this will be accomplished by filling old mining pits, whereas at the gold dredger mining sites (Borrow sites) this will be accomplished by removing dredger tailings for use at the Project site. At both sites, these activities will restore a properly sized bankfull channel, reconstruct functional floodplains, increase gravel supply, plant native riparian vegetation, and construct floodplain surfaces to encourage natural riparian regeneration. Because both sites are on public lands, this project will accomplish the restoration goal and reduce project costs by restoring two sites for the price of one. These borrow areas also provide opportunities to restore other floodplain surfaces and enhance upland habitats through creation of new wetlands. Our specific objectives for restoration are:

- ***Reverse channel damage caused by historic gravel extraction at the Project site by reconstructing a properly sized bankfull channel and floodplain.***
- ***Restore the ability of the channel to route coarse sediment downstream and deposit fine sediment on floodplain surfaces***
- ***Restore native riparian vegetation on floodplain surfaces by focusing on species that provide a diverse canopy structure and removing competing exotic plant species.***
- ***Reduce salmonid stranding and mortality in floodplain gravel mining pits.***
- ***Provide improved habitat conditions for native fish and wildlife including priority salmonid species of central concern to CALFED and CVPIA restoration programs.***
- ***Create diverse off channel wetland habitats in marginal upland habitats that are currently degraded by dredger tailings and in other uplands locations as opportunities arise.***

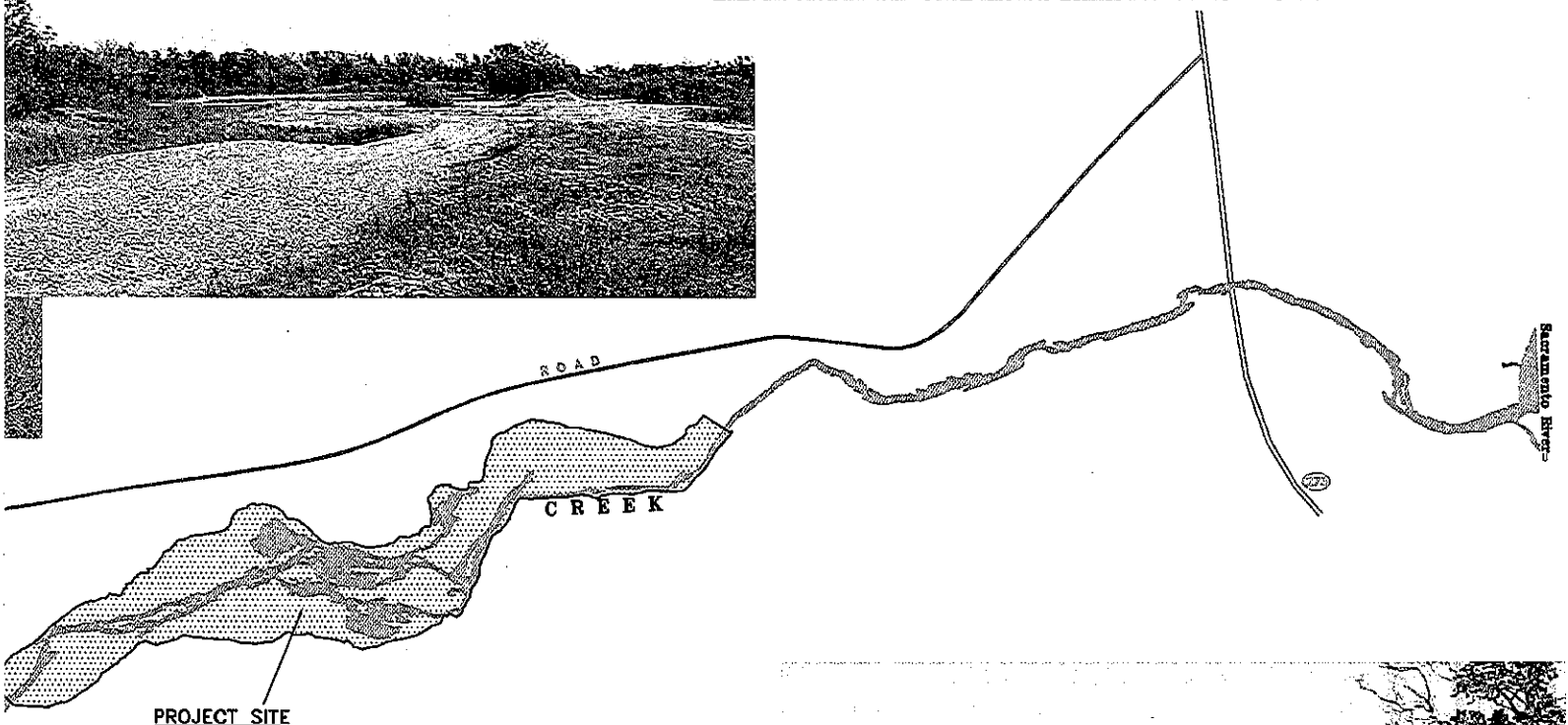




ECOSYSTEM RESTORATION VISION

River ecosystem health is dependent to a large degree on the physical processes that occur within the watershed. In aquatic systems, fish and wildlife species are even more dependent on the physical condition of their environment for survival, growth and reproduction. Native fish, wildlife, and plant species have evolved over the millennia to best survive under those natural physical conditions. Restoration of the lower Clear Creek floodway is based on the premise that salmon and trout habitat is best restored and maintained by recreating those natural conditions, flow and sediment transport, within the current physical and operational constraints that exist within Clear Creek today. Given these conceptual ideas the Lower Clear Creek Channel Restoration Team developed the following vision statement to guide development of future restoration actions within lower Clear Creek:

Utilize an integrated approach to re-establish critical ecological functions, processes, and characteristics, within contemporary regulated flow and sediment conditions, that best promote recovery and maintenance of resilient wild salmon populations and the river's natural animal and plant communities.

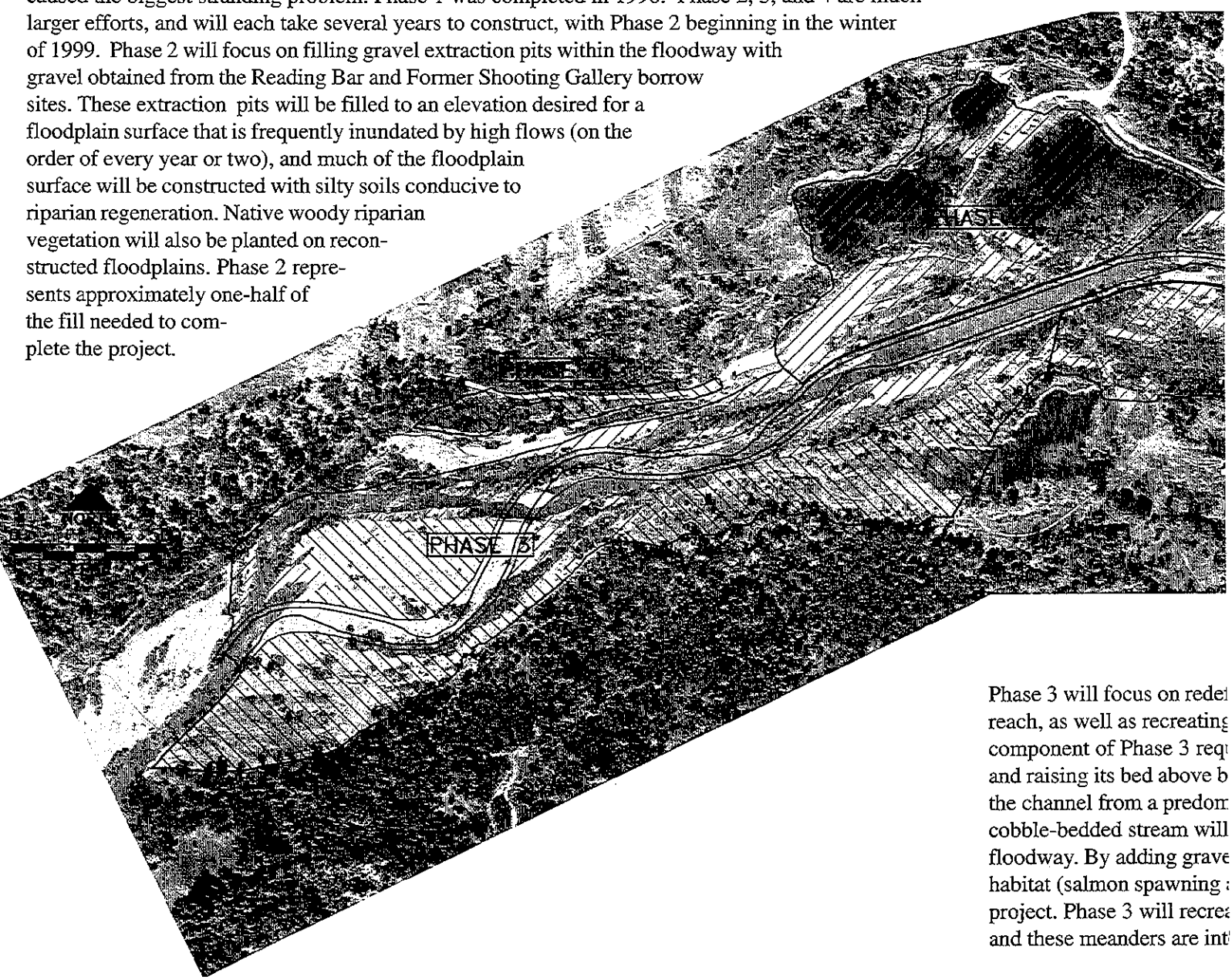


MAJOR PROJECT FEATURES

Extensive gravel mining at the Project site left a series of pits and reaches of channel with exposed clay hardpan, and in some locations, diverted the channel from its natural location into artificial bypass channels. Destruction of a defined channel resulted in many multi-channeled reaches that caused significant stranding mortality to both adult and juvenile salmon. Restoring this site requires that much of the gravel removed during mining activities be replaced to redefine a primary channel and floodplain. The scale of restoring these sites is largely due to the extensive volume of gravel removed from the Project site, and the large volume of gravel needed to be removed from the Borrow sites to restore the Project site. Therefore, the restoration project has been divided into four phases.

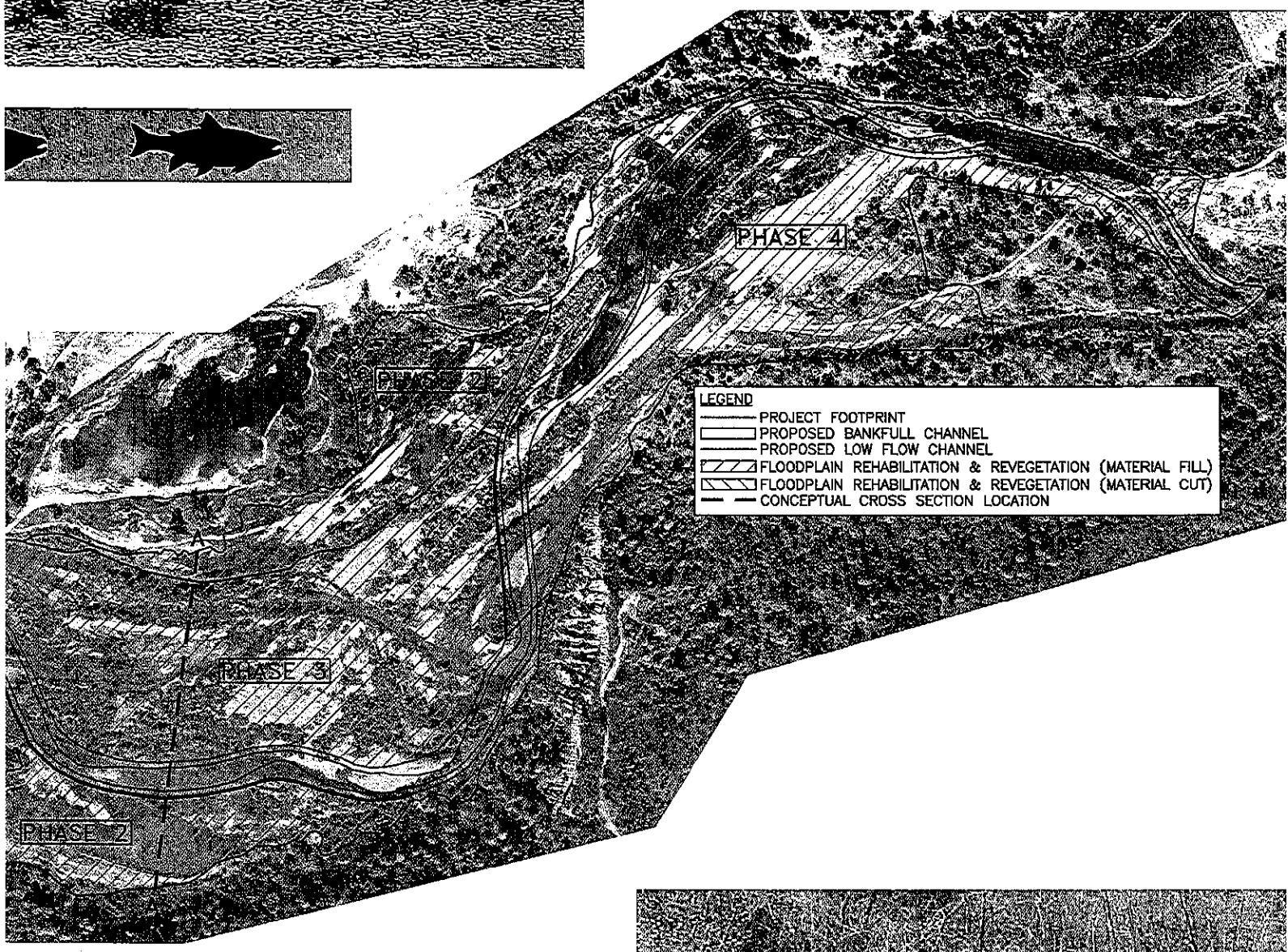
Project Reach

Phase 1 consisted of constructing a large berm to isolate salmon from a pond on the south side of the creek that caused the biggest stranding problem. Phase 1 was completed in 1998. Phase 2, 3, and 4 are much larger efforts, and will each take several years to construct, with Phase 2 beginning in the winter of 1999. Phase 2 will focus on filling gravel extraction pits within the floodway with gravel obtained from the Reading Bar and Former Shooting Gallery borrow sites. These extraction pits will be filled to an elevation desired for a floodplain surface that is frequently inundated by high flows (on the order of every year or two), and much of the floodplain surface will be constructed with silty soils conducive to riparian regeneration. Native woody riparian vegetation will also be planted on reconstructed floodplains. Phase 2 represents approximately one-half of the fill needed to complete the project.

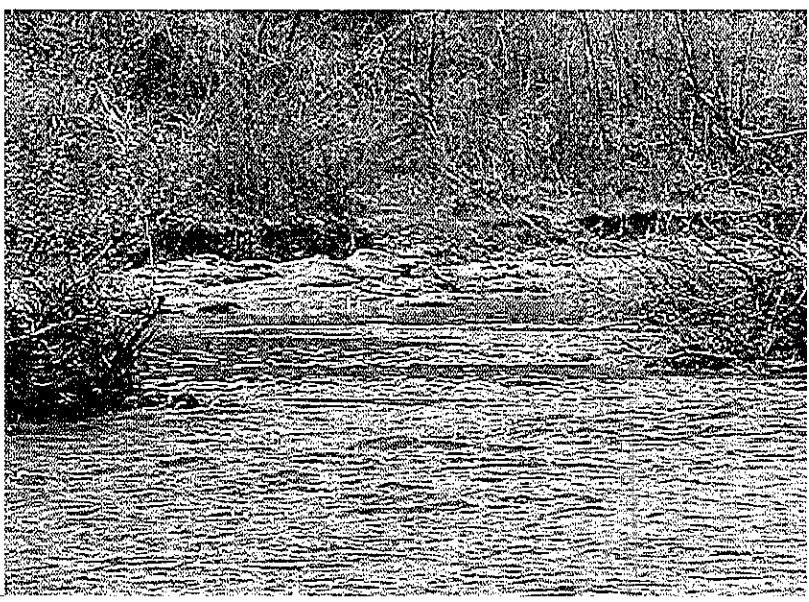


Phase 3 will focus on redef
reach, as well as recreating
component of Phase 3 req
and raising its bed above b
the channel from a predom
cobble-bedded stream will
floodway. By adding grave
habitat (salmon spawning
project. Phase 3 will recrea
and these meanders are int

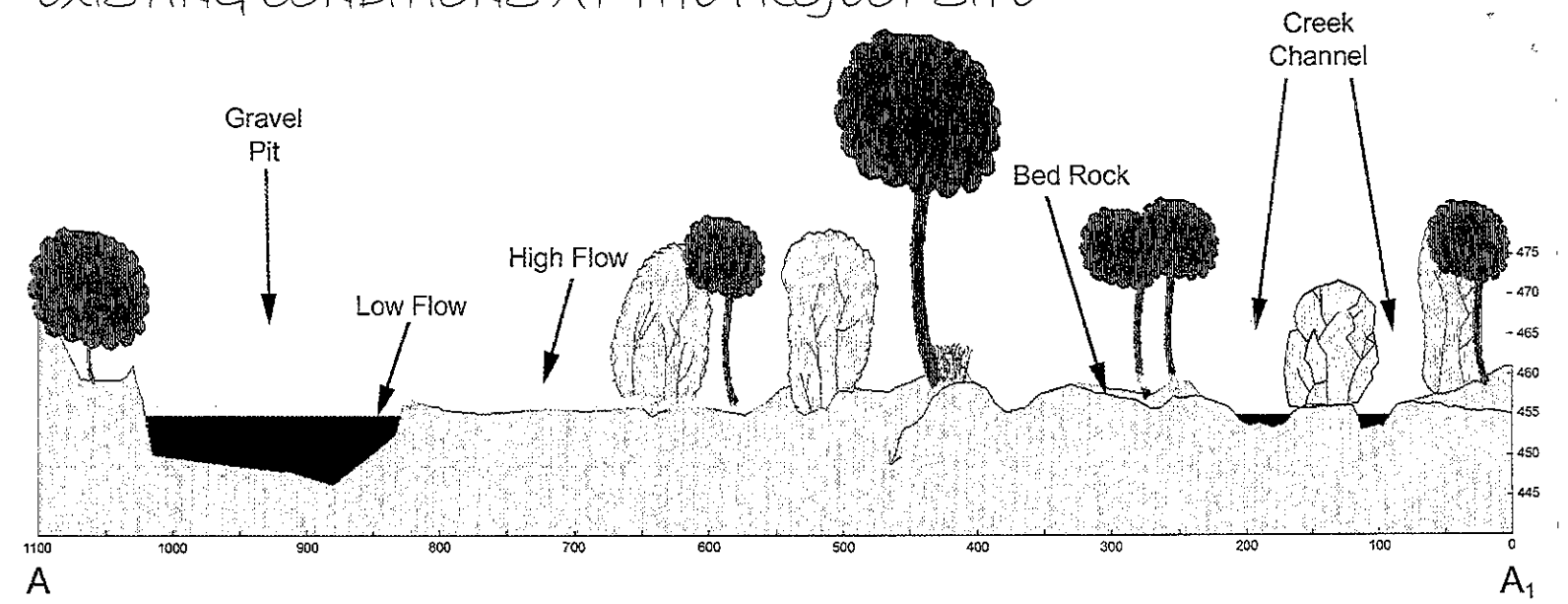
Phase 4 will restore Clear Creek to its pre-gravel mining location in the downstream end of the project site. Presently, Clear Creek flows through an artificially constructed bypass channel through clay and bedrock, bisecting its natural meandering channel. In addition to moving the channel back to its historic location, floodplains will be reconstructed, and native woody riparian vegetation will be replanted.



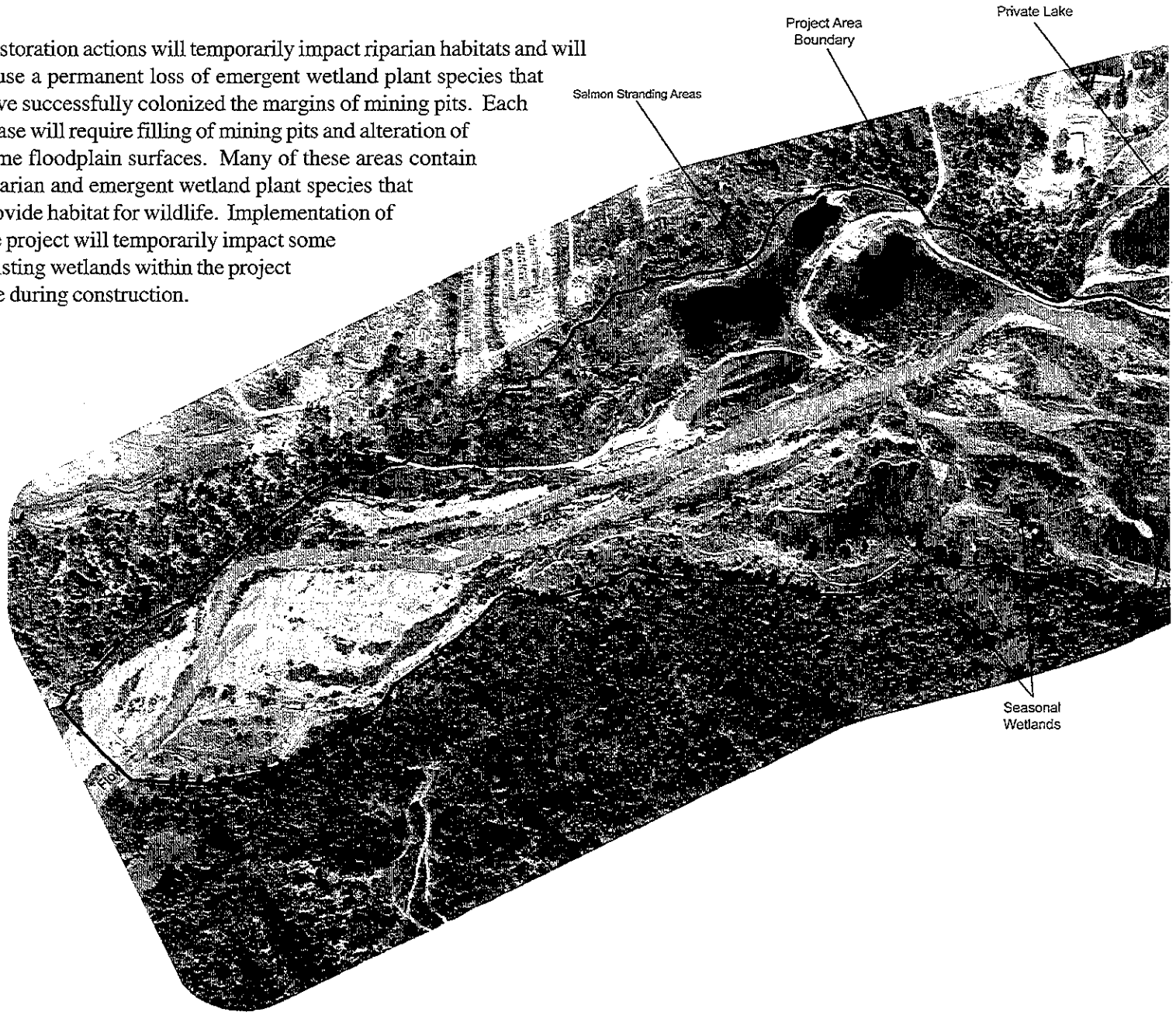
; a primary channel through the upper two-thirds of the
dplain surfaces and riparian revegetation. A critical
moving the new channel away from bedrock areas
:k surfaces by adding gravels and cobbles. Converting
ly bedrock-bottomed stream back to a gravel- and
w the channel to create bars and move across the
l cobbles back to the floodway, most of the instream
earing habitat) will be created during Phase 3 of the
meandering channel with a series of pools and riffles,
d to move and readjust during high flows.



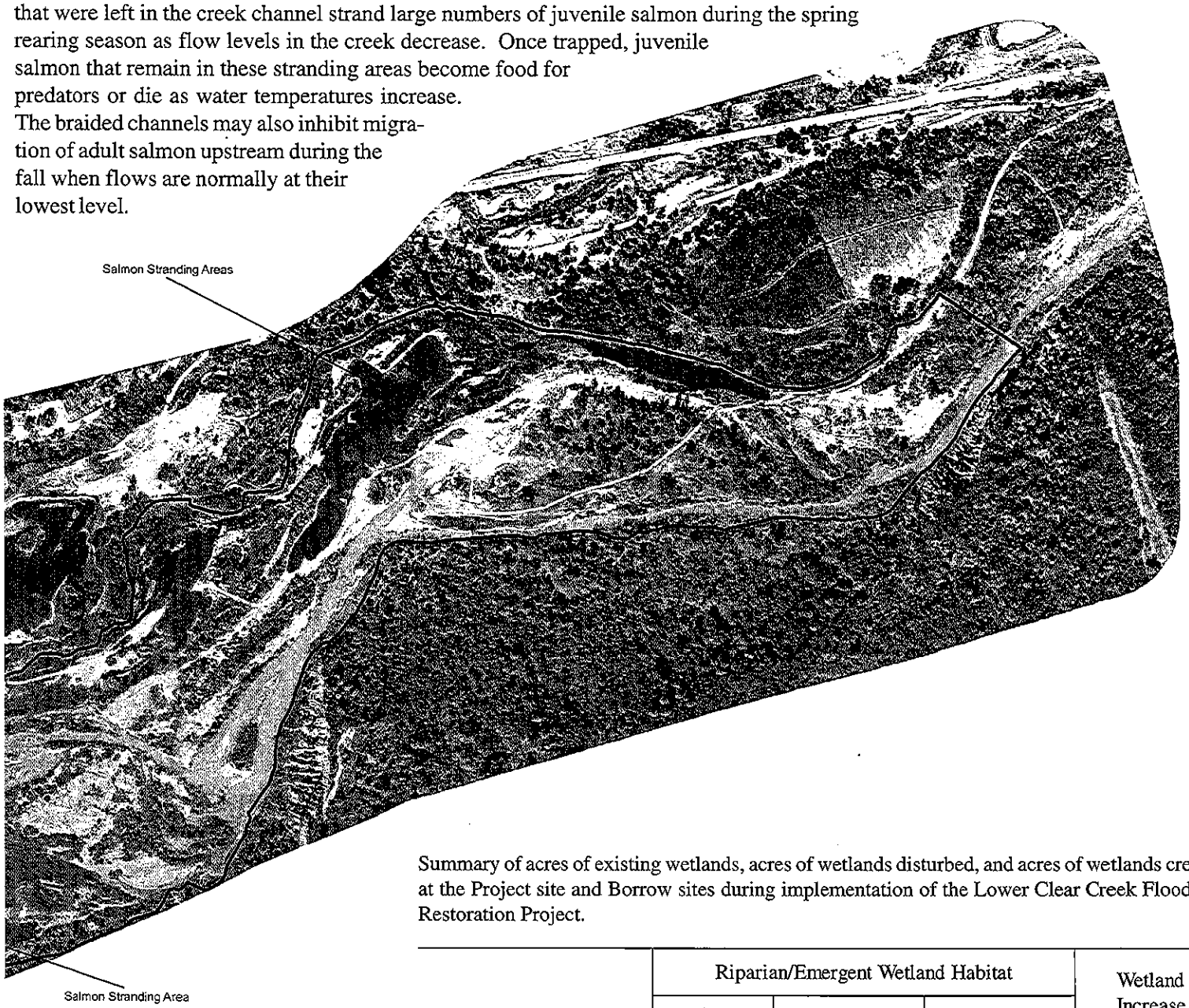
EXISTING CONDITIONS AT THE PROJECT SITE



Restoration actions will temporarily impact riparian habitats and will cause a permanent loss of emergent wetland plant species that have successfully colonized the margins of mining pits. Each phase will require filling of mining pits and alteration of some floodplain surfaces. Many of these areas contain riparian and emergent wetland plant species that provide habitat for wildlife. Implementation of the project will temporarily impact some existing wetlands within the project site during construction.



Years of gravel extraction within the Project Reach have removed vast quantities of alluvial gravel deposits that are critical to maintaining healthy habitat for salmon and steelhead. Riffle habitats that once contained abundant spawning gravels have been replaced by clay and bedrock surfaces that are unsuitable for spawning. Remnant gravel mining pits that were left in the creek channel strand large numbers of juvenile salmon during the spring rearing season as flow levels in the creek decrease. Once trapped, juvenile salmon that remain in these stranding areas become food for predators or die as water temperatures increase. The braided channels may also inhibit migration of adult salmon upstream during the fall when flows are normally at their lowest level.



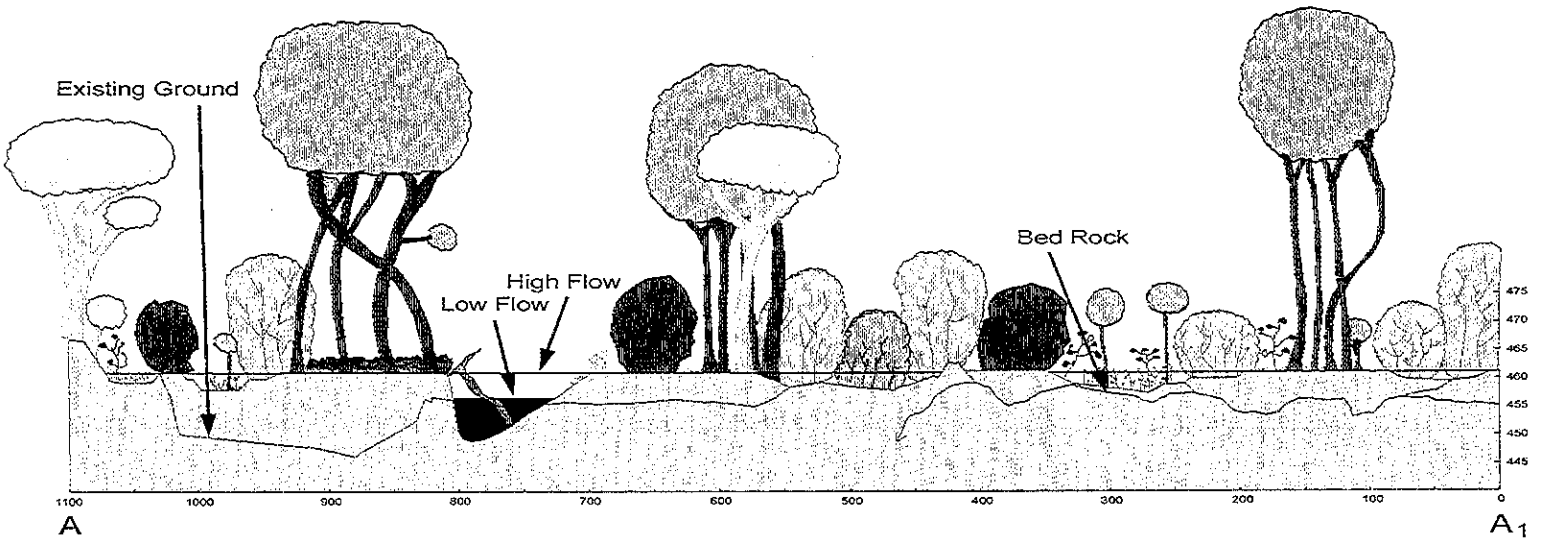
Summary of acres of existing wetlands, acres of wetlands disturbed, and acres of wetlands created at the Project site and Borrow sites during implementation of the Lower Clear Creek Floodway Restoration Project.

Location	Riparian/Emergent Wetland Habitat			Wetland Increase (acres)
	Existing (acres)	Disturb (acres)	Created (acres)	
Project Site (Phase 2-4)	88.6	52.2	77.2	25.0
Borrow Sites				
Reading Bar	4.3	0.9	7.9	7.0
Former Shooting Gallery	6.8	4.4	13.6	9.2
Old Mill[1]	6.9	5.0	32.4	27.4
Total	106.6	59.1	125.7	65.6

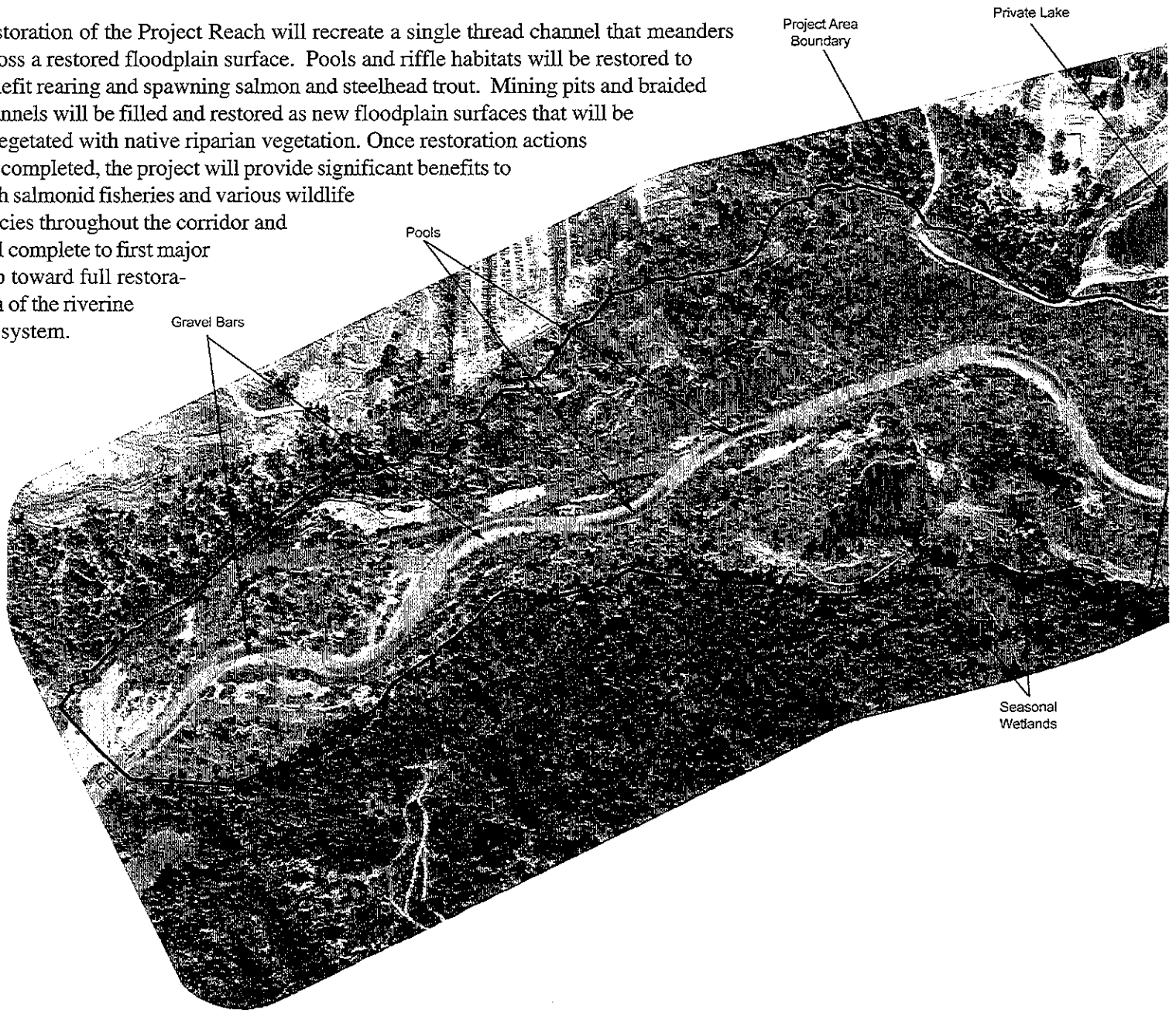
[1] Wetland estimates include 6 acres Phase 1 mitigation and Abandoned Mines Restoration effort by BLM.

The project will create additional riparian wetlands on newly created floodplains in the project site and will create additional riparian and emergent wetlands in each of the three borrow sites upstream. Vegetation communities to be restored include Arroyo willow, black willow, mixed willow, white alder, Fremont cottonwood, bulrush, buttonbush, elderberry, mulefat, and sedges. Planting various vegetation communities will insure creation of diverse wildlife habitats and will restore floodplain surfaces to historic conditions.

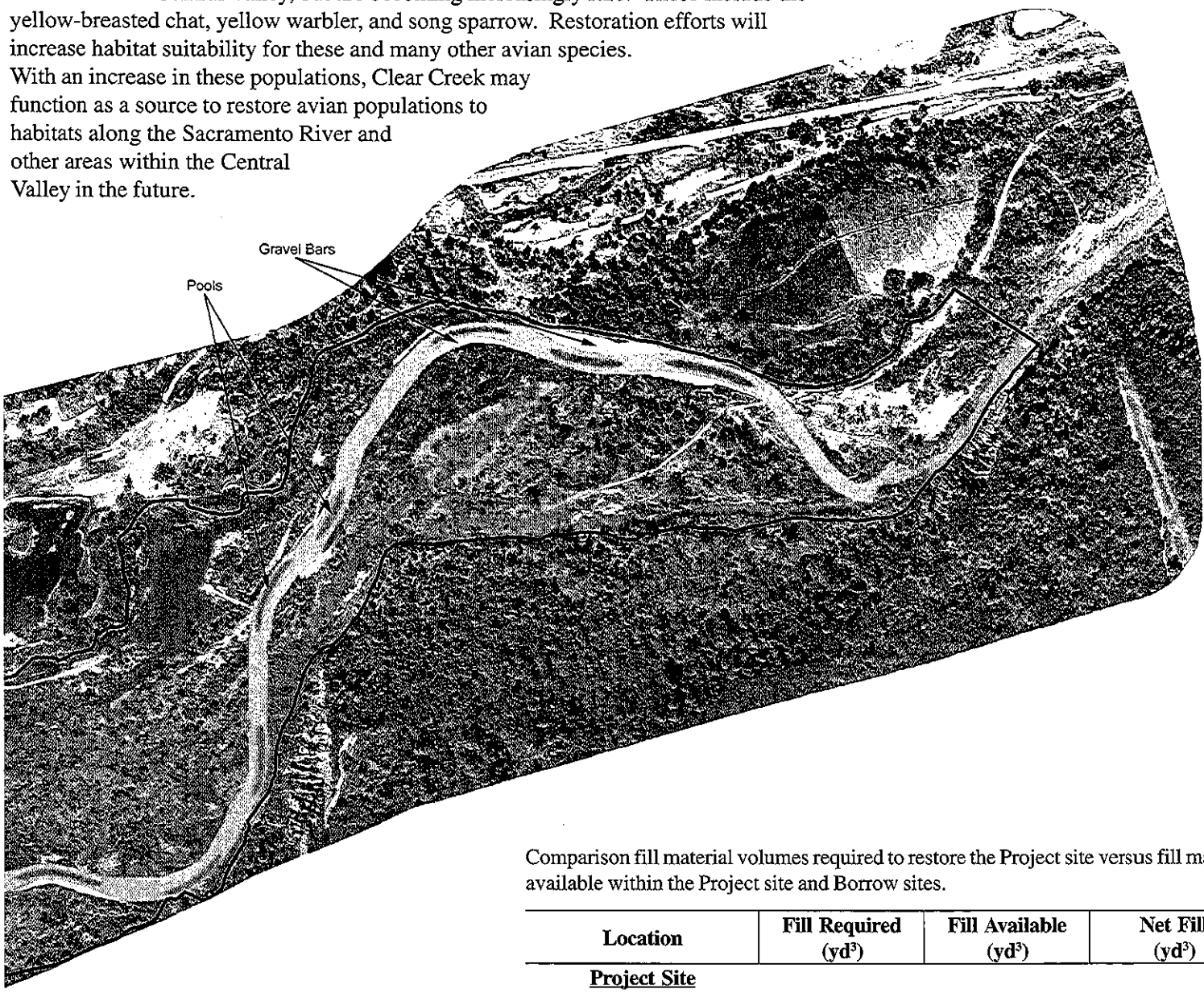
RESTORED CONDITIONS AT THE PROJECT SITE



Restoration of the Project Reach will recreate a single thread channel that meanders across a restored floodplain surface. Pools and riffle habitats will be restored to benefit rearing and spawning salmon and steelhead trout. Mining pits and braided channels will be filled and restored as new floodplain surfaces that will be revegetated with native riparian vegetation. Once restoration actions are completed, the project will provide significant benefits to both salmonid fisheries and various wildlife species throughout the corridor and will complete to first major step toward full restoration of the riverine ecosystem.



Clear Creek currently supports breeding populations of several migratory bird species that were once common in the Central Valley, but are becoming increasingly rare. These include the yellow-breasted chat, yellow warbler, and song sparrow. Restoration efforts will increase habitat suitability for these and many other avian species. With an increase in these populations, Clear Creek may function as a source to restore avian populations to habitats along the Sacramento River and other areas within the Central Valley in the future.

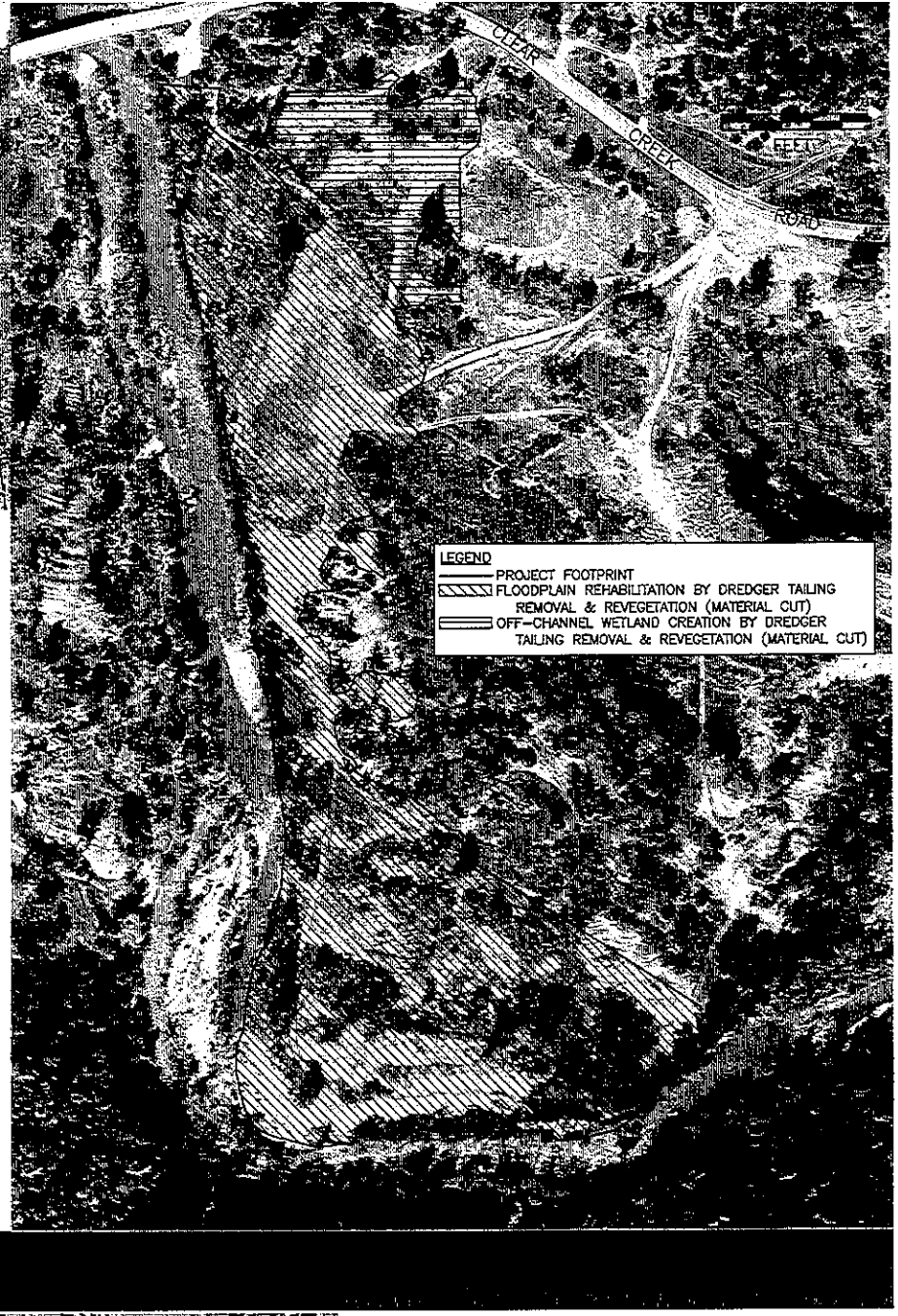


Comparison fill material volumes required to restore the Project site versus fill material available within the Project site and Borrow sites.

Location	Fill Required (yd^3)	Fill Available (yd^3)	Net Fill (yd^3)
Project Site			
Phase 2	173,000	25,000	148,000
Phase 3	242,051	132,095	110,000
Phase 4	156,000	41,000	114,000
Subtotal	571,000	198,000	372,000
Borrow Sites			
Reading Bar		120,000	252,000
Former Shooting Gallery		310,000	(58,000)
Old Mill[1]			
Subtotal		430,000	
Total Surplus			+58,000

[1] Materials from Old Mill site are not required for phase 2-4 implementation

Construction of the project will require movement of large volumes of material (dredger tailing and existing floodplain surfaces) to fill pits and create a new stream channel and floodplain surfaces. Construction of the entire project will require approximately 571,000 yd^3 . Approximately 198,000 yd^3 of material is available within the project site in historic flood terraces and 430,000 yd^3 of material are available at the Reading Bar and Former Shooting Gallery Borrow Sites leaving a surplus of approximately 58,000 yd^3 of material.

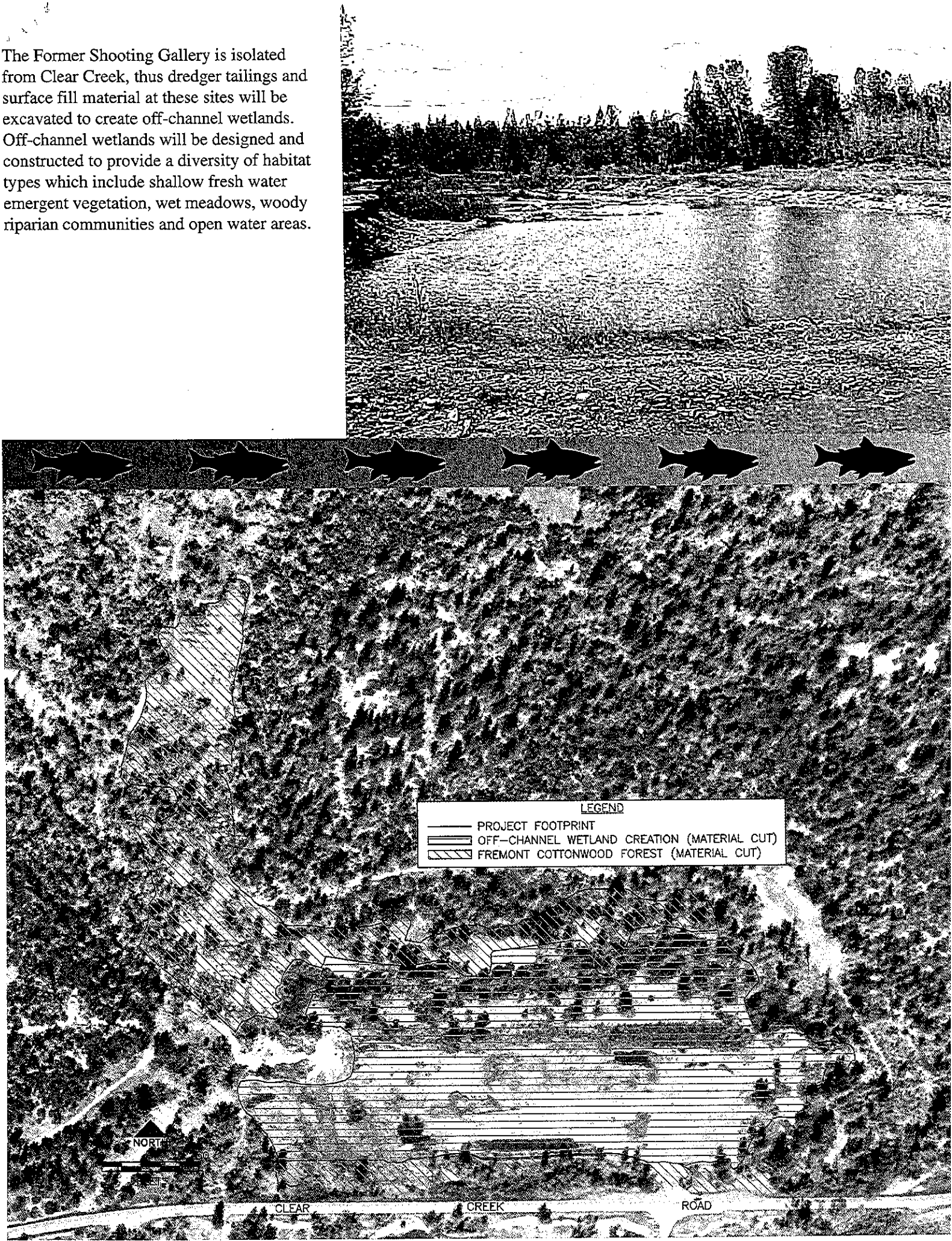


Borrow Sites

Constructing Phase 2-4 will require large volumes of cobble and gravel. Two sites with extensive dredger tailings on public land have been identified as the best sources of cobbles and gravels: Reading Bar and the Former Shooting Gallery. A third site, Old Mill, was identified as a good location to create and enhance upland habitats through creation of off channel wetlands. These sites are all within a few miles of the Project site, and using these borrow sites will provide economical sources of gravel and cobbles. Fill material will be obtained by excavating dredger tailings. Because the Reading Bar site is adjacent to Clear Creek, dredger tailings will be removed to an elevation that creates a new floodplain surface over most of the site, and off-channel wetlands will be created further away from the channel.

The Old Mill Site provides a good location for creation of additional wetland habitats and six acres of riparian emergent wetlands will be created on this site as mitigation for wetland losses incurred at the Project Site during implementation of Phase 1 in 1998. The Bureau of Land Management has also selected this site for creation of up to an additional 20 acres of wetlands using funds obtained through their Abandoned Mines Restoration Program.

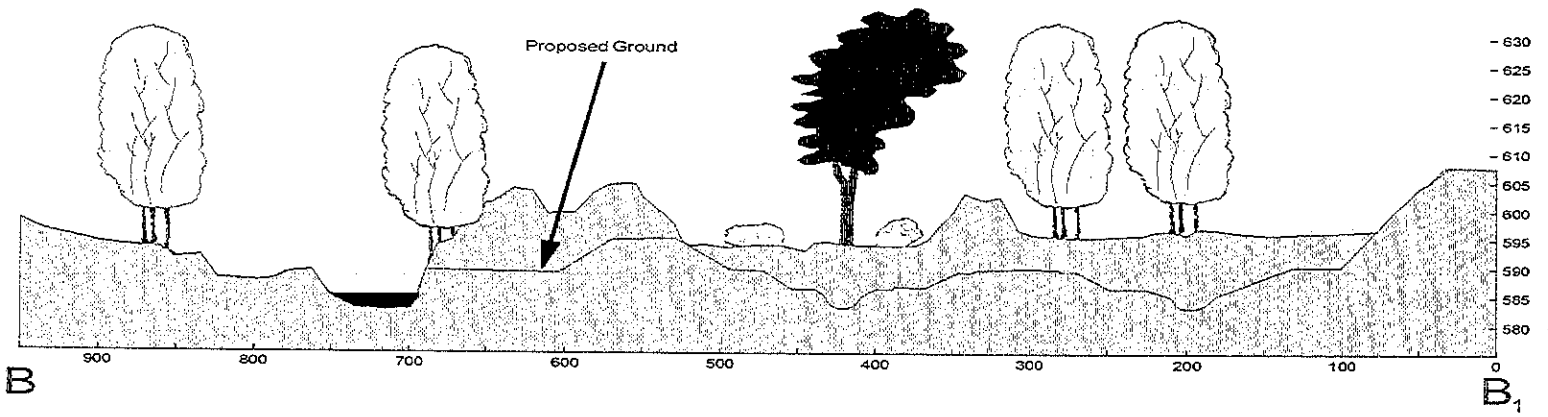
The Former Shooting Gallery is isolated from Clear Creek, thus dredger tailings and surface fill material at these sites will be excavated to create off-channel wetlands. Off-channel wetlands will be designed and constructed to provide a diversity of habitat types which include shallow fresh water emergent vegetation, wet meadows, woody riparian communities and open water areas.



EXISTING CONDITIONS AT THE READING BAR SITE

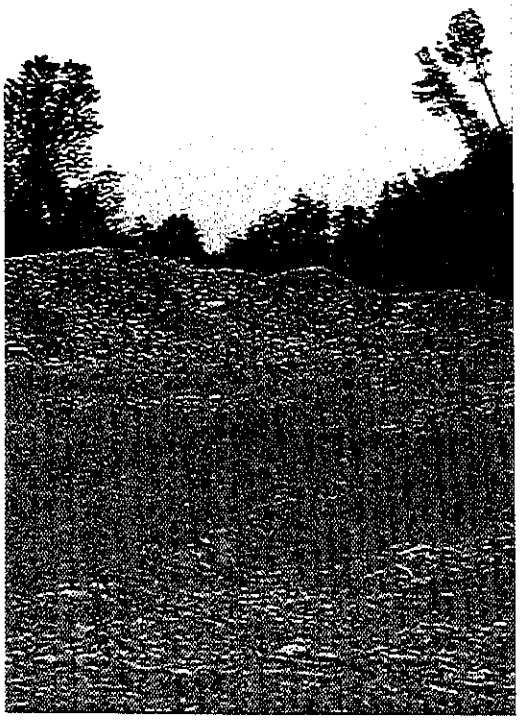
The Reading Bar Site has been altered by both g
good source of borrow material needed for restora
ing Bar site is adjacent to Clear Creek, dredger ta
floodplain surface over most of the site.

Off-channel wetlands will be created further awa
wildlife habitat value. Restored floodplain surfa
native riparian and wetland species which will pr
the removal of borrow materials with restoration a
restoration goals at the Borrow Sites and Project S

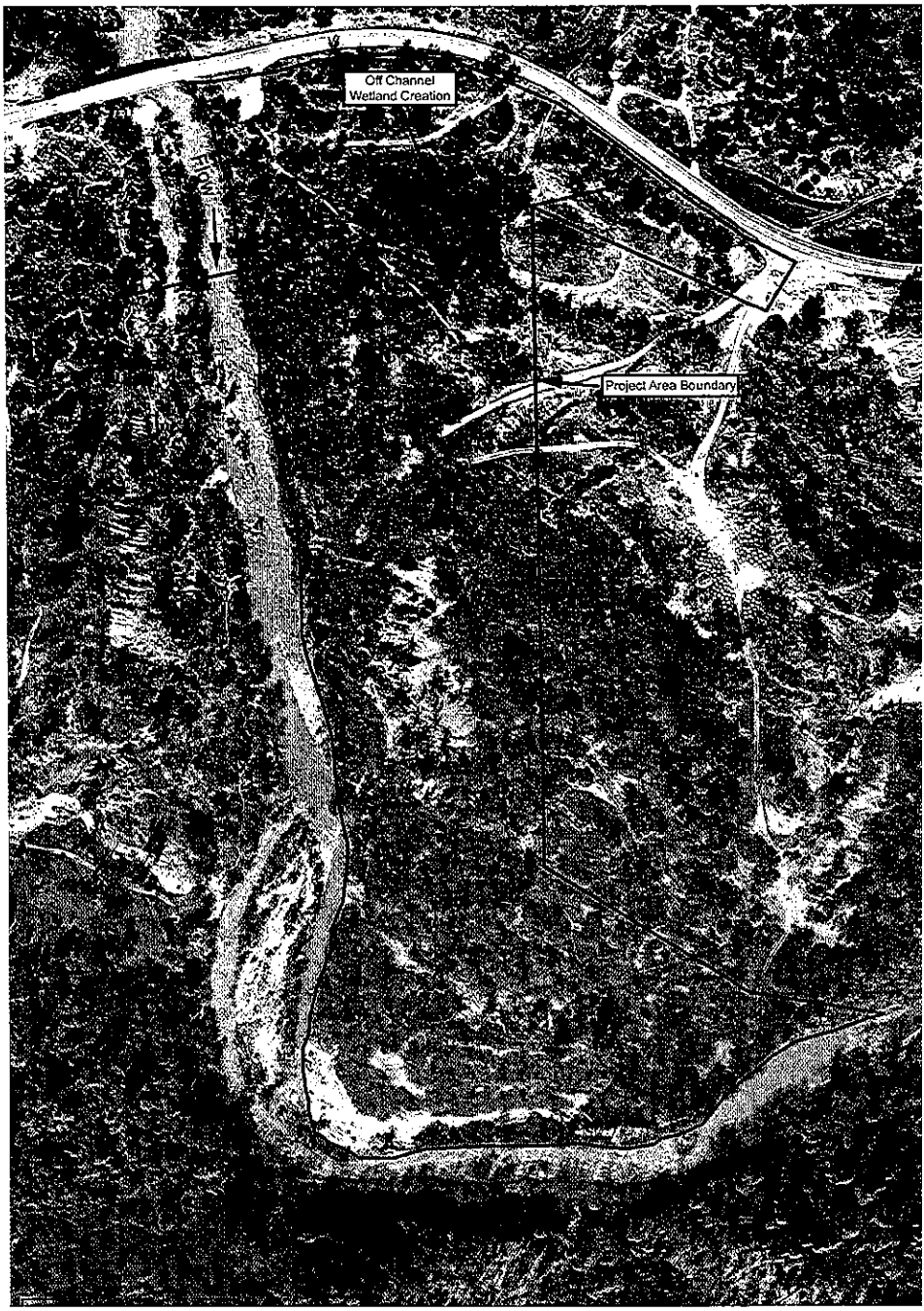


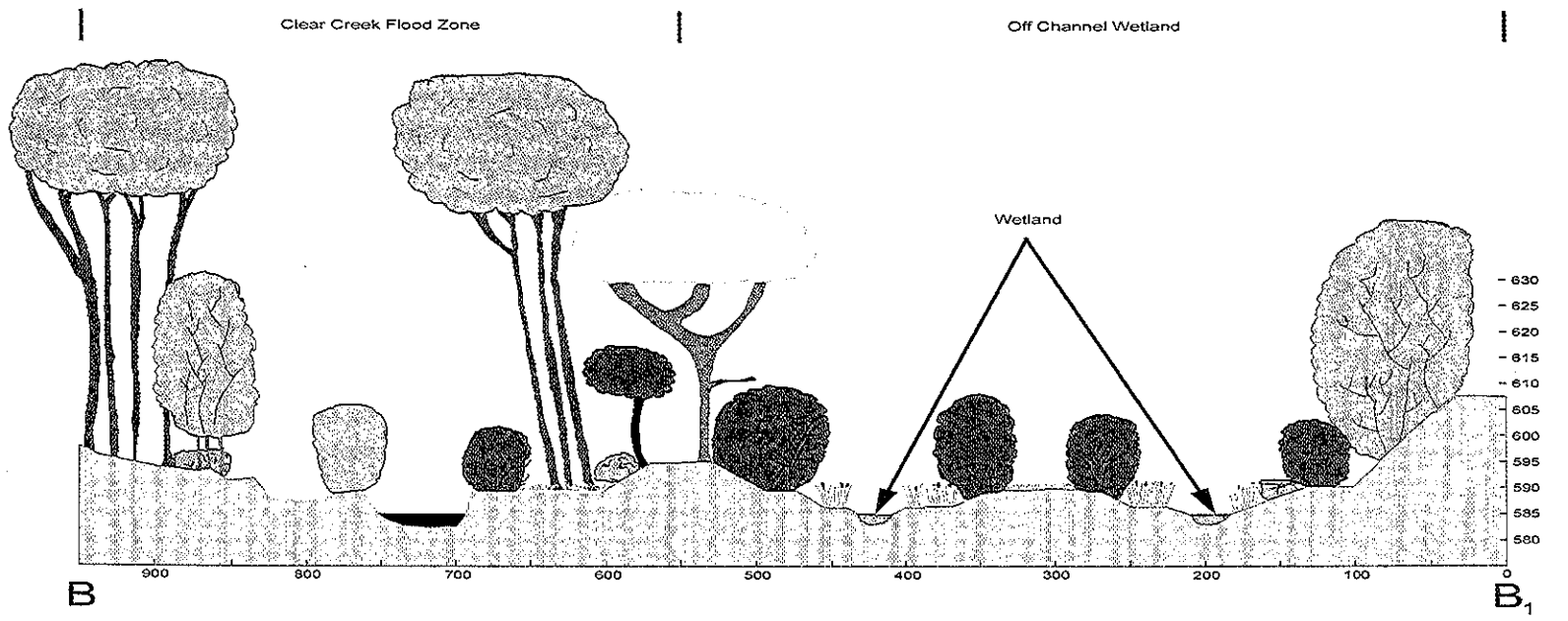
RESTORED CONDITIONS AT THE READING BAR SITE

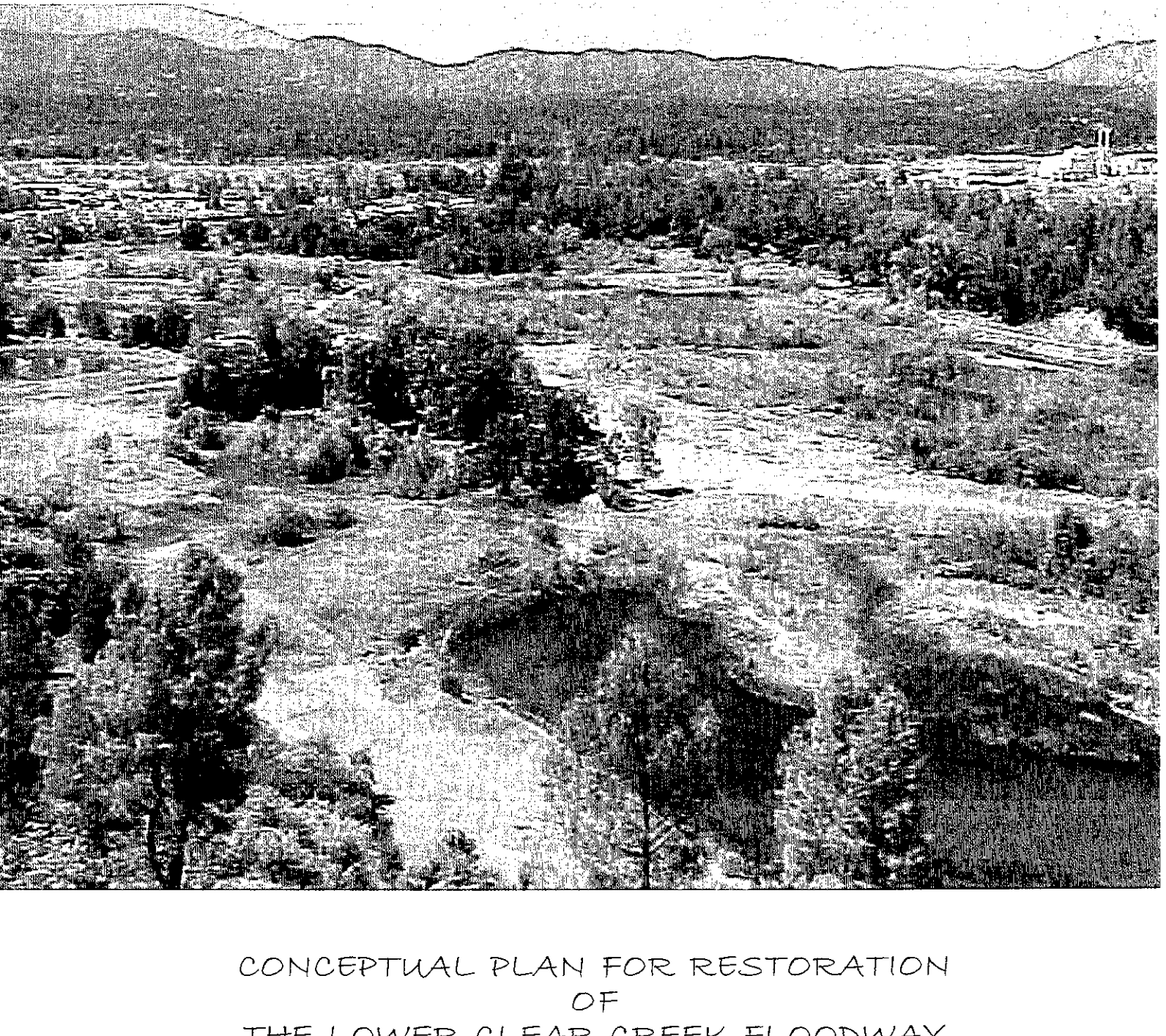
ıers and gravel mining operators and provides a
f the Project Site downstream. Because the Read-
will be removed to an elevation that creates a new



the channel in an area that currently provides little
l off-channel wetlands will be revegetated with
greater benefits to wildlife species. By integrating
, the project will reduce costs and accomplish
ıultaneously.







CONCEPTUAL PLAN FOR RESTORATION OF THE LOWER CLEAR CREEK FLOODWAY

PREPARED FOR:

THE LOWER CLEAR CREEK TECHNICAL WORK GROUP

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